NBC NEWS - STS-1 LAUNCH ATTEMPT (4-10-1981)

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From Friday, April 10th 1981 NBC NEWS Coverage of the launch attempt of STS-1, America's first Space Shuttle flight. Launch was planned for 6:50 A.M E.T, However, after unsuccessfully trouble shooting computers not talking to each other in the 20 minute built in hold, the launch was scrubbed at about 10:12 A.M E.T. @3:18:46

Coverage runs from 6:00 A.M E.T - 10:25 A.M E.T.
STS-1 CREW:
Commander: John Young
Pilot: Bob Crippen
(April 12th - April 14th, 1981)

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[Music] oh live from the kennedy space center at cape canaveral florida nbc news covers the flight of columbia the shuttle begins sponsored in part by ford and your ford dealer who invite you to test drive the exp america's new personal sports coupe here are nbc news correspondents john chancellor and tom brokaw and good morning and with tom and me here is joseph kirwan the astronaut whom we last remembered on skylab two good morning dr kerwin if i may say so uh the countdown is uh going on now we're currently in a hold we expect that the shuttle columbia will take off from cape canaveral here in about 50 minutes everything has gone very very well so far the astronauts are in the spaceship itself they checked on their heartbeats a few minutes ago their heartbeats are 75 beats per minute which really shows people who are it seems to me not very excited about what they're doing although they must be mine would be about 150 if i were there uh behind me you could it looks as though it's dark but it actually we've had to tint these windows here so that um outside it's a nice dawn it's just beginning and the weather here tom is really pretty good well they had a great concern about the weather as you well know there was a little drizzle overnight but that's gone away and the forecast looks very good they're concerned about the weather for lots of reasons but one of the reasons that they're concerned about is that they may have to bring it back if it doesn't go well on launch and landed here at cape kennedy and if it does go well and they landed at edwards air force base in california they want to make sure that the weather is good at that end as well because it's due to land on a dry lake bed and it wasn't very long ago that that dry lake bed was under water

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dry lake bed was under water so they've had a limit of 10 mile an hour or 10 knot crosswinds here and they've had a cloud cover limit of about 50 percent were well within that range here this morning and they're also looking at some other sites as well we have frank field standing by outside and he's going to give us an update now on the weather situation here at cape canaveral the kennedy space center frank well tom the space flight meteorologist and the air force meteorologist are all going for good weather this morning as a matter of fact that the launch pad itself directly over 39a one can see what looks to be a dark series of clouds a blanket of clouds it's about 2500 feet well that's a thin layer of clouds that extended inland and that's what gave us the light drizzle but that is also dissipating and overhead now we have some light cirrus but to check all around the cape itself we can go to the radar and the radar which is fed to us through wesh h the nbc affiliate shows that just off the cape itself clear skies and all the way around those little bright spots you see just to the north of daytona beach well that indicates false echo so there was no rainfall within 200 miles of the cape itself so at the cape itself our winds will be light they'll be out of the southeast two tenths of cumulus at about three thousand feet maybe three tenths of sears those are the high thin crystal clouds that are up at about twenty thousand feet at the primary landing area as you mentioned edwards air force base we expect that the winds there too will be light and within all the parameters three tenths of cirrus that's good the winds also will be light at white sands norfolk strip there the winds will be out of the northwest with light cirrus clouds about three tenths again the visibility will be excellent so all points are proving out very nicely it's a textbook kind of weather the other areas around the world at kadena which is in okinawa not too good they've got cloudy skies and rain showers and that will persist but we're not looking for any problems there hickam partly cloudy road in spain another landing site partly cloudy so all in all the weather is shaping up nicely should prove to be no problem gentlemen there are just

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no problem gentlemen there are just maybe millions of people here at cape canaveral tom brokaw had a terrible time getting here this morning uh had to drive on the wrong side of the road at one point robert bazelle our science correspondent had to hitchhike and walk all the way out here it's 25 miles from the hotel the roads are just jammed with people waiting to see this launch as we all are we'll be back with more coverage of the launch of the shuttle after this mbc's coverage of the first space shuttle will continue in a moment saturday joined barbara mandrell cape canaveral the kennedy space center and the astronauts are fully loaded into the orbiter columbia they were up at about 1 30 this morning after going to bed yesterday afternoon at about 4 30 p.m among other things they have to change their circadian rhythm in the final month before liftoff so they've had a good busy morning already at this hour let's get an update on what they've been doing now from nbc's ike siemens one of the hardest and most dangerous parts of the countdown occurred early this morning columbia's fuel tanks were filled with volatile gases by remote control it was brought off without a hitch around two o'clock eastern time just about the time that astronauts john young and robert crippen were waking up they went to bed at 4 30 yesterday afternoon after a 10 medical examination young and crippen were joined by space officials while they had steak eggs toast orange juice and coffee for breakfast on board columbia they'll take in 3 000 calories a day by eating rehydrated food heated by an electric food warmer they'll bring with them future space shuttle crews and passengers will dine from a galley next the astronauts got into their new shuttle space suits they're lighter and easier to move around in than the ones worn by astronauts on earlier missions in space technicians found a minor air leak in crippen's helmet it was fixed on the spot a short time later

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later young and crippen left in the van so familiar from other space flights and headed for launch pad 39a and the white room there the closeout crew got them ready to enter the shuttle this was the moment the two astronauts have been waiting for after three years of training to fly columbia this will be command pilot young's fifth flight into space for crippen his first since becoming an astronaut in 1969 the pre-launch procedures appear to be going very well and all systems seem to be go even the weather is cooperating it's clear there's little wind and no rain as liftoff approaches ike siemens nbc news at the kennedy space center joe kerwin what happens if something goes wrong this morning there are a number of plans that we know of that the first one would call for the astronauts to be ejected in seats from the that's right from uh launch to about 120 000 feet should something really serious go wrong uh and it'd have to be more than an engine failure they eject from 120 000 feet up to staging or separation of the solids uh their only recourse is to do a quick separation fast step from the stack and then try and get the orbiter off probably ejecting subsequent to that because they wouldn't be in the right position to make a landing that's a very unlikely occurrence after staging they're in the return to launch site abort mode and any time out to about four minutes and 20 seconds uh they can turn the thing around dump it all dump all the fuel tanks well what they do is burn and start the turn at such a time that their velocity back to the cape is right about the time the external tank is virtually empty and then they separate from the tank and glide back to a relatively normal landing here at the cape and then finally they could they could go once around didn't they they can abort once around and we have a new abort mode just in between it covered an abort gap between the end of return to launch site in the beginning of the once around abort into the

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of the once around abort into the holloman air force base and that's rhoda spain we now have the capability to abort two rota between four minutes and approximately seven or seven and a half minutes weather is not terrific there this morning in terms of the winds though right it didn't sound too bad the uh the winds were out of the uh south southwest they weren't too strong and uh the clouds were scattered with an occasional rain shower in the area uh it's a good backup to have in your pocket i think they're fairly tense out there this morning at this hour you've been there uh their attention is uh has been captured by this uh you were talking about their heart rates their normals are around 60 so 75 indicates that they're interested in what's going on here thanks joe as john was just saying a few moments ago we've got an incredible traffic situation going on around here it's a kind of a combination woodstock and smoky in the bandit as it seems that everybody with a car camper bus motorcycle whatever piece of vehicular transportation they have they're all on the same road trying to get to a viewing site we're going to go now to jim cummins who's keeping track of this at a place called the nassau causeway where a lot of the workers in this project have been invited to view the launch this morning jim what's the situation there now [Music] more than 50 000 people have gathered here on the bank of the banana river at the kennedy space center this morning to watch the shuttle launch many of the people here are shuttle project workers and their families veteran launch watchers including cliff england who is standing here with me cliff has worked here at the space center now since 1964 and has seen something like 50 to 75 launches cliff i noticed this morning that most of these people sat in traffic jams for hours to come out here and see something that will last less than two minutes why do they come out for that well most of the people here are avid space fans their

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are avid space fans their families their husbands or their wives they our children work for the space center we feel that this national space agency who i work for as proud of this project we feel that the national uh prestige of going into space it will be added to by this uh space shuttle do you expect to see anything different here from all the all the launches that you've seen in the past anything different here today i think it'll be a little bit different than the saturn v going up i think we'll see the solids go off a little bit faster but i think we'll still see the same reaction the cloud of smoke will hear the thunder of the the big rock as it comes across this water just thunders across here it shakes your pant legs it's like every fourth of july that i've ever been to rolled into one we're gonna try to show you here we are about five miles away from the spaceship columbia which is across the bay here across the river and across the marsh we are told that there are people vips who have a closer vantage point something like box seats at a baseball game if so these people here are sitting in the bleachers but they don't mind john we are now in a planned hold 20 minutes before launch the clock has been stopped you can see the spacecraft on pad 39a there they are getting the computers ready for the firing sequence that's done by computer the chase planes are ready to take off and follow the spacecraft as it goes into the air and they are readying the computers for the flight program and we expect that something in about 35 to 37 minutes now as that man we just heard said you will see every fourth of july you ever saw rolled into one we'll be back with more after this the uh planned and scheduled hold of the

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the uh planned and scheduled hold of the countdown clock is still going on here at cape canaveral the liftoff is still scheduled for 10 minutes of seven eastern time and the people are coming from all over the united states to see this thing we took some pictures of them this morning when the light got good enough there you see the road and just thousands and thousands and thousands of cars that uh we were able to observe here all kinds of people um out there waiting for the launch which is due to come now in less than 45 minutes about 40 about sorry a little more than a half an hour everything going well here and in houston roy neal is there because they'll be running part of this flight after liftoff here at the cape roy are you there yes indeed john i hope you hear me i know i certainly hear you matter of fact i'm wearing two headsets this morning as i will throughout the flight i listen to mission control and the astronauts and this year i hear you in this ear and at the moment i'm seated in our nbc flight deck simulator which is a rather fair reproduction of what the astronauts themselves have to work with in the cockpit this is probably the most complex cockpit ever devised by man and uh if i were john young and bob crippen at the moment i'd be on my back looking up at the sky like this because that's the position of the spacecraft and those are my windows over there now of course if i were in the actual cockpit too if i were john young i'd be on the left seat sitting over there and the most obvious thing that you see are two objects that won't be used during this portion of the flight from john's seat that's the hand controller in the middle and a speed bait brake control down to the left side also rudder pedals that's actually those are the devices that will be used to fly the spacecraft on orbit and for landing purposes but uh i'll be in bob crippen's seat over here the pilot seat and one of the things that these men are working with right now are the computers and their computer controls here on both

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their computer controls here on both sides these spacecraft the space shuttle fly by computer the astronauts actually punch up controls into the computer for the most part the computer then does all the work of driving the hydraulics which in turn make the control services work to see what your computers are doing there are cathode ray tubes television tubes if you like that are prominently displayed and that carry the output of computers as well as almost anything else the astronauts might like to look at in terms of readouts that their instruments and meters don't give them and oh yes here's a rather important feature one of the things they hope will not happen is that red lights like this should not go on during any portion of this flight those are master alarms when they go on in the spacecraft there are horrible noises as well to alert the astronauts the fact that something has gone wrong so we'll punch off the master alarm hope they don't see it and take a look instead at mission control which is of course the the big reason that we are here in houston this is mission control right now the flight controllers in place neil hutchinson is the main flight director he would be in the forefront of your picture there he is right there neil hutchinson wearing his beard and ready to go controlling the flight controllers as they go through the final stages of countdown this morning to his right and not visible in this nasa provided picture would be joe allen capsule communicator they still call that big spacecraft at capsule as far as mission control is concerned and joe allen has done this thing in the past he is one of uh three capcoms as they're called and this is one of three flight teams they'll alternate in eight hour shifts and they'll be on duty around the clock mission control here in houston will actually assume control of this mission uh about the time the spacecraft clears the tower and at that time the big map in the center of mission control that you can see in the upper left hand corner of your picture will become activated all those round circles that indicate to us where the tracking stations the ground stations worldwide are to be found will start to flash when

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are to be found will start to flash when the spacecraft is in contact with them and we'll see a little animated spacecraft fly around the world that's what we're hoping for and that's what we're standing by for here in houston john and we're standing by with clock going once again john a program known as major mode 101. this is the [Music] that's also built into the schedule later so that one other hole one other hole sorry uh later on but all this means is that we're still on schedule and the planned hold that they had taken uh they took it looks good for as they were saying for the scheduled liftoff at 6 50 a.m uh that's in just a half an hour from now so there will be another hold coming up when roy was showing us the cockpit there there are 2 000 displays i think all together in that cockpit and there are what over a hundred uh thousand switches that they'll have to toggle at one time or another or that they could toggle if they had to at one time and little red lights that go on just as they do in your car giving you a sinking feeling as well the uh the the astronaut of the future of course bob crippen is supposed to be a great expert on software that's the stuff that goes into the computer that's what happens they no longer wear the silkscar they now come out and they're experts on software we'll be back with more on the launch of the columbia space shuttle after this nbc's coverage of the first space shuttle will continue in a moment [Music] there are so many things that are unique about the columbia orbiter but one of the most important features of course has to do with the surface down here because when it returns from outer space and it comes back to earth at about this configuration it will generate an enormous amount of heat here on this surface and to deal with that heat to make sure that it doesn't burn up in space

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doesn't burn up in space nasa developed a special kind of tile spun from minnesota sand into a silicate and there are about 31 000 of these that are pieced together and then bonded on to the columbia shuttle orbiter and they were put together by a computer it's kind of like a large jigsaw puzzle this was a problem for a time they had a some trouble with some of them falling off in one of the flights when the one of the shuttles was transported from california here to florida and then they also had some other trouble with just finding the right kind of mining the glue that made them stick on but now they think they're in pretty good shape they can withstand temperatures up to 2500 degrees most of the heat is absorbed into the interior of this tile so it heats up like that and they say although i've never done this and this one was not heated up that you could pick it up by the corners even though it's been heated up to 2400 degrees altogether so that's one of the things that they are concerned about but they figure that they have now licked the problem or they wouldn't have it out there on the launch pad and ready to go but we'll be talking a lot about these tiles in the next couple of days well the tiles have not been the only problem troubles with the propulsion system have also caused some cause some delays and some cost overruns robert bazelle has put together this report on how the shuttle's propulsion system works the space shuttle requires four separate propulsion systems two are needed to lift the craft off the pad and into orbit the other two are used to make navigational corrections in space and to change the shuttle's fight attitudes the long cylindrical solid rocket boosters provide eighty percent of the initial thrust on launching the boosters are 150 feet long and 12 feet wide the fuel inside them looks and feels like hard rubber used in typewriter erasers when it ignites here's what happens [Music] the instantaneous blast brings the booster to its full three million pounds of thrust in one

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three million pounds of thrust in one second the main propulsion system the cluster of three rockets in the tail is the most powerful ever built in its size and weight range the engines each develop 375 000 pounds of thrust because they can swivel on their mountings as much as 21 degrees the engines are a steering mechanism as well as a propelling device it is the main engines which are the first to ignite on liftoff they are soon joined by the solid rocket boosters but the boosters are burned out within two minutes they are returned to earth by parachute and retrieved for future use a series of mishaps has plagued the engine since the beginning of the project the worst being this complete flame out in which the main engines burned up and fell apart during testing but subsequent work brought them up to a high degree of performance which was demonstrated in firings conducted on the pad at cape canaveral in february [Music] robert bazelle nbc and so john young and robert crippen the crew of the spaceship columbia are in their seats in the uh on the on the flight deck of it the computers are being readied the engines of the chase planes have been started the countdown is underway the seat belts are fastened and they should be going in about 23 minutes we'll be back with more after this you may wonder what these uh earphones are we're listening to uh the shuttle launch control and we'll be hearing some of that in just about a minute and ten seconds when they announce the next planned hold in the countdown there's another hold on the way on the schedule in the meantime the uh joe they're they're having a bit of difficulty comparing the backup program on the computers is that something we ought to worry about very much i don't think so they should be able to

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i don't think so they should be able to uh fix it during this planned 10-minute hold they need the backup computer of course they have four prime computers all in one set and then they have a backup computer with totally different software when they brought it online they found that it wasn't listening to two of the four strings of data coming across from the uh from the prime computer they're trying to to re-initialize it so that it's listening to all the data and then they'll press on why don't you describe for us just how those computers settle arguments among themselves of the four primary computers well they vote they they they do it very democratically and if three of them vote the fourth one out he shuts himself down and goes and sits in a corner and pouts and i and i interrupt you we're we want you all to hear the voice of hugh harris in launch control you'll be hearing him a lot here he is now t-minus nine minutes and holding this is shuttle launch control and that was uh i mean we have lots of business data because of the strength specifically we're looking for if we're looking for anything with a down arrow on it something that would give us a clue as to why it did not pick up those strengths all the indications that we have are the ones that are associated with uh but not having the strength you have you have a message uh this is shuttle launch control an announcement follows in 30 seconds what they're talking about and you heard joe carwin uh told us about it it's the dis it's the one computer not listening to the information being fed to it uh it's probably getting in there somewhere but they've got to find out why we do not at the moment regard that as a very serious problem yeah i i doubt that they'll launch in this configuration but i doubt that they won't get it fixed either

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won't get it fixed either it's not a mechanical problem no no no it's a software problem yeah this is shuttle launch control at t minus nine minutes and holding we have had an indication that a comparison of the backup computer programs in the orbiter has been conducted again and the outcome is satisfactory so at this point we have no constraints that we know of for a liftoff on time at 6 50 a.m this morning this is a final 10 minute build in hold and when we come out of this we will go into those final nine minutes of count down to launch at 6 50 a.m this is shuttle launch control well that's the situation they say they've got the computer communication problem fixed i must say as an innocent to these things it didn't sound to me as though they had it fixed but they know far more than than i do about this we would now like to show you some animation of the launch itself which is due in 17 minutes or so an operation that must go perfectly and precisely if the mission is to succeed here is roy neal to describe it for us the main engines using liquid fuel fire first seconds later the solid fuel booster rockets join in the gravitational pressure on the crew will reach three times earth gravity as the shuttle reaches 2 hundred miles an hour the solid boosters burn out sixteen small rockets are used to blast the pods free after they're jettisoned they parachute into the ocean to be retrieved after eight minutes the main engines cut off the big tank disconnects from the orbiter and drifts off into oblivion eventually it'll burn up on re-entry the columbia is now 70 miles above the earth smaller maneuvering engines will push it to a speed of 17 500 miles an hour in orbit finally the columbia will be controlled turned this way in that by small

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turned this way in that by small reaction control thrusters some of them in the tailpods others in the nose 44 reaction control system thrusters in all roy neal nbc news as you might expect a lot of people are here to watch the launch of the columbia orbiter in and around the area at cape canaveral a lot of them people who live in this area or driven a long ways to see it then there is a kind of vip section as well a combination of politicians and celebrities of one kind or another a lot of prominent guests from the contractors who helped build the system we have bob busell standing down in that area with a governor who has talked about launching his own space satellite from his state that's governor jerry brown in california bob good morning tom yeah this here this is the vip area where people who nasa invite get to watch the launch with me is governor jerry brown good morning governor good morning what about your own space satellite or space launches in california well we're going to have some use of a satellite for emergency uh communication we have a great risk in california of a catastrophic earthquake and the only real way to provide on-the-spot communication is with a satellite hookup and we'll be uh working on that very soon there's been a lot of criticism of the shuttle as as being perhaps unnecessary and kind of display of technology that we really don't need what do you think about that i think that's utter nonsense america is a leader in space we have to continue and even expand otherwise we'll become a second-rate nation this technology doesn't depend on cheap labor it doesn't depend on wrecking the environment but rather is a window and a step into the larger environment which is the solar system itself and for communication for resource monitoring uh for defense uh this is absolutely vital and i would like to see a much greater commitment by the private sector as well as the government to develop our space potential what do you think of the reagan administration's attitude towards

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reagan administration's attitude towards the space program so far well there are some positive signs but on balance it's still very inadequate uh the space budget is one-third of what it was under john kennedy and it's less than the interest on the national debt for one year it's ridiculous do you think your satellite is going to go up in the shuttle the california side well the satellite that i wanted to buy for california will go up but it will now be owned either by the military uh or by an agency of the federal government well thank you very much governor now back to john chancellor thank you governor edmund g brown jr of california talking about space he's a big fan of space says it doesn't hurt the environment and it's good for the soul of the country as well as science the hold is still on here the planned and scheduled hold in the countdown it'll run about five more minutes and after that we'll be back and then things will happen here very rapidly and launch is still as of now scheduled for 10 minutes of seven or ten minutes before the next hour and we'll be back with more coverage of the space launch after this back with our coverage of the launch of the columbia space shuttle from the kennedy space center at cape canaveral we're in a planned hold right now but a small glitch has developed it turns out we were just told that a light has come on indicating that there's an improper level in fuel cell 3. there's the possibility that they may go into a 50-minute hold to fix the problem if that becomes necessary joe kerwin is our astronaut with us here at the nbc news desk covering all this joe what's fuel cell 3 uh the fuel cells are the makers of electricity for the shuttle there are three of them uh you can perform a launch or anything with with two but we're not going to lift off unless we have all three the fuel cells functioning but as near as i can tell when they went to full power on that fuel cell they got an indication of a high ph which may indicate a little in internal

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which may indicate a little in internal leak within the fuel cell it also could be a sensor problem it stayed on about two minutes and then went off they're checking the fuel cell out and will decide whether they need to purge the fuel cell or whether they can proceed let's talk for just a few moments about what happens when launch does occur and it still looks as if it will this morning maybe now not at 6 50 a.m as we've been talking about maybe delayed a little bit yeah but one of the things that i think our viewers ought to be aware of on this launch is that yesterday i called the convulsion you said that's a little strong it takes a kind of a radical move though when it leaves the launch pad doesn't it a lot of people are going to say something's wrong if you're not prepared for that uh i don't know how dramatic it'll look it'll look on the on the screen but of course the thing takes off facing south and as soon as it clears the tower you want to begin to roll it so that the orbiter is pointed in the direction that it's going which is northeast and at the same time you begin to pitch it over uh we're going to go to john chancellor right now joe we've got an update on something here i think uh we were just told by launch control that they are extending the hold slightly uh that they and then they repeated what you were just talking about the uh little maybe it's the light maybe it's not funny indications they're making an assessment and they say they'll be able to tell us soon so that if you're keeping a clock on this thing at home the thing to do is to keep your clock stopped because extending the hold as of this time means that it will not go at 10 minutes before the hour but it may go five minutes later on schedule it may be later than that if they have to bring those arms back joe and they have to go back inside and get a what i would call a repairman in there to have a look at this uh that would take us quite a long time to do it wouldn't it i suspect that if we had to get physical hands-on access to the fuel cell we would not launch today okay okay so we would be buried in there somewhere together deep in the mid mid fuselage

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together deep in the mid mid fuselage but uh i still have vibes that it's not going to be that that big of a big okay well anyhow we were talking just a moment ago about what happens on takeoff right and it and it goes it turns over they turn it around so you'll hear the call tower clear roll program started pitch program started and of course accelerating all the time it's a fairly gentle low rate sort of a thing uh what's exciting to the crew at liftoff is that when those big solids come on those thrust echoes from the ground and from all that structure around the pad and it shakes that vehicle pretty good for about three seconds for the first full minute of the flight you have what you call max q we may be hearing something about that in which the which the whole structure undergoes its greatest stress uh well actually max q is a point in the flight about 45 seconds in when the dynamic pressure or friction of the air builds up to a peak you kind of burst through it you go supersonic and then you get into the rapidly thinning upper atmosphere uh max q has vibrations and uh wind stresses on the wings and tail of the orbiter associated with it in fact the the orbiter control surfaces the airplane services undergo a programmed series of maneuvers there to unload them all right one of the things that's going on now is that the astronauts are talking to their their control and let's listen to that for just a second you may not understand it all but it's quite interesting to listen to houston verifies we have nsp1 joe if you have any comments at this point just break in okay there's it now uh cdr i'd like for you to take the ctc time stay back in ppc back around they're still working to resolve their backup computer now give me an io reset on primary and give me a verbal when you do it okay

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and give me a verbal when you do it okay this is shuttle launch control an announcement follows in 30 seconds so we have not only the fuel cell problem but we still have an unresolved problem of i'm going to call them instructions or memory instead of software uh going to one of the computers and we're expecting an announcement in a few seconds this is shuttle launch control at t minus nine minutes and holding uh we are presently holding past the normal time in which we would pick up the countdown uh because of a problem with the number three fuel cell a troubleshooting uh team is working on that fuel cell at the present time to determine whether or not the excess water production by the fuel cell is a problem we expect to have an announcement in a couple of minutes about that at the present time all other elements of the launch team appear to be ready to support the launch the only problem being with the number three fuel cell we are standing by to await the results of an analysis of that problem this is shuttle launch control did i just say could we see the picture of the of the capsule again that you're seeing on your screens the one not capsule the whole arrangement just to just to orient you at home the the great big thing that looks like the uh the top of a moorish cathedral is the um is one of the fuel tanks that's full of liquid hydrogen and oxygen highly volatile stuff a small thing that looks like a rocket that you see in the foreground that looks as though it's attached to the external tank is the solid fuel rocket booster and that's a great big thing nothing that big has ever been sent into space before with solid fuel

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before with solid fuel and then to the left of these two structures or fuel tanks you see the when there's a better view now you can see the wings of the orbiter itself the whole thing looks like the castle for princess leia in star wars to see it from that point of view we'll be back we're in a small hole right now but we'll be back with more coverage from cape canaveral and the launch of the columbia space shuttle after this the status of the one shot uh i guess we're still thinking uh probably the best course of action to take the bfs right now it's about 12 minutes before seven o'clock eastern standard time and we were scheduled to have a launch in about two minutes we're not going to have one at that time here at the kennedy space center at cape canaveral with the columbia space shuttle located directly behind us because they're in a hole they've got a problem officially described by the nasa spokesman here as a fuel cell three apparently they have excess water production a team of troubleshooters now at work on that simultaneously we are hearing discussion of another problem that they had earlier in this hour and that has to do with the backup computer on board not listening to the four primary computers or at least two of them so what they have done is dump out the software they call the memory or instructions as john chancellor calls it and they're going to reload that backup computer and see if it then begins to listen properly and that's part of the process that we believe that they're still in at this time so the scheduled launch of the columbia shuttle has been delayed at least momentarily we're not sure how long as they continue to work officially on that one problem and deal with the computer tom i think this reminds us that the uh columbia is the most complicated and sophisticated vehicle man has ever produced it's got so many different systems in it and a couple of them are

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and a couple of them are worthy of discussion shall we say at the moment and they've got a problem with one fuel cell number three producing excess water as far as we can tell right now a problem that if they have to go and solve it we'll delay the launch today roy neal is at uh in the houston the johnson space center there i think roy can add a little light to this problem can you well i'm not sure at all john because in this case i have with me jerry wheeler who's a senior engineer for rockwell prime contractor on this machine the reason i'm i'm a little in doubt is that like the astronauts and light mission control we are sitting here trying to second-guess an unknown situation the unknown situation being of course what in the world is really wrong with fuel cell three why is it turning out too much water now i can show you here in our uh flight simulator pretty much what they're looking at and we'll be monitoring here's and here's an announcement from mission control from launch control or should be an announcement for lost control shuttle launch minus nine minutes and holding at the present time we are in the process of dumping the program which is in the backup flight computers called the backup flight software and are going to re-enter that program into the computer we had thought that this particular problem had gone away but apparently it had not and we are also continuing to look at the problem with the uh number three fuel cells the problem with the fuel cell appears to be that the production of water is higher than it normally should be and the problem with the backup computer may well be solved with the reprogramming of it the it's approximately a seven minute operation and we have about uh 45 minutes

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and we have about uh 45 minutes remaining in our hold capability at this time so the countdown stands at t minus nine minutes and holding this is shuttle launch control well translated uh that means they will try to launch i've translated that means that they still have plenty of time left in in plan built in hold time but they'll try to launch within the hour from what i was hearing here jerry now i'd like to show something when they are re-computing this is the area that the pilot bob crippen or the commander john young would work with this is where you program your computer and up here is where they're reading out the various details of those fuel cells so they're obviously working with that portion of their control room they're on the flight deck at this time and jerry uh if they can't get that fuel cell to give correct readings what would happen to our launch today well they won't launch with just two fuel cells they will they would probably have to delay the launch if they can't get the fuel cell to check out that once they get up into orbit there's no problem uh it's just like with flying aircraft you have those things you can do in once you're in flight but you're not allowed to take off until you know unless they're all working and of course that spacecraft is now on top of the stack the stack is ready to go and obviously they can't go in and make a fix so what they can do instead is see whether or not a sensor is bad in other words they're getting false readings on these meters or can they when they talk about purging a fuel cell what do you do to purge a fuel cell well the uh the crew will do that and uh this is something that in flight they'll be doing they get rid of the excess water that they uh build up from the fuel cells as you know they're liquid hydrogen liquid oxygen and you have to go in every once in a while and clean out the excess moisture so that's about what they would do here i would like to also point out though in

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i would like to also point out though in addition to just the crew working right now you also have all those uh engineers over in the mission control center they all have their consoles they're looking at the uh at the fuel cells they're looking at temperatures pressures and they'll do the troubleshooting along with the crew that's in the module according to my watch jerry we should be getting some kind of results here in about another three or four minutes as to just how serious this problem seems to be and whether or not it might cause a postponement of the launch for today now they're not in such bad shape that they couldn't reschedule for tomorrow in an event like this you could well again i i can't speculate i don't know exactly what the problem is but uh but assuming that it's it is a normal fuel cell three problem excessive water production they do have to go in and take a look at it and make a fix what then would be your guess as to how long we would be looking at well if they if they actually had to go in and get at the fuel cell it would certainly be at least one day there'd be no doubt about that but uh there's a lot you can do without actually going and having hands on maintenance uh so they'll probably probably get it fixed all right i want to tune in here for a moment and listen to these astronauts because they are working now with mission control and uh attempt our retrieval parallel uh data review all right they're talking about depth that's the digital authorized control an announcement follows in 30 seconds hugh harris in launch control telling us that 30 seconds from now we'll be able to hear from him what the latest is and what the latest is of course is strictly a question mark at this time a question mark because of dual problems all small as a matter of fact that's another point jerry we have a brand new machine it's the first time this thing's been tried i guess it would have been unusual if it had launched right on time wouldn't it i fly in c-141s out of norton air force base and reserves and every time we go out to the airplane we have a series of minor problems and

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we have a series of minor problems and that's an airplane we've been flying for years uh here's that announcement right now which was the number three fuel cell has been determined uh to be satisfactory at this time and it appears that we will be able to go ahead with the countdown from the standpoint of the fuel cells however we are still in the process of working the problem with the backup flight software that software has been dumped and it's being compared by the uh engineers at the johnson space center in houston we're standing by to hear whether that comparison is satisfactory and whether or not we can pick up the countdown in the next few minutes both the commander of john young and pilot bob crippen are involved in this process of comparing of the flight program this is shuttle launch control well okay now what they've said is what you just heard at home is what we've just heard here they fix the problem they believe in fuel cell number three which was producing too much water they are still fooling around with the instructions the memory the software in one of the backup computers and joe kerwin who is here with us bringing his expertise as an astronaut to these proceedings joe you said earlier that if they couldn't fix the uh the computer problem and i think i guess we have to call it that now that they won't be able to launch is that right i think that's that's correct oh if they fixed it they said it was just satisfactory does that mean that they've gotten it all totally fixed or they just are convinced that that they may have been misreading of some kind i may be one minute behind they dumped and they were bringing the computers back they're still bringing it back in ops zero now they just said on on here that we still have the same problem we had initially i just heard okay uh krippen or young say that so that

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we suggest that we don't do any further action until we have a better handle on this that's the depends computer the evaluation of the data at houston and the data retrieval and the uh the view here data retrieval here's the process so he's talking about 15 20 minutes otc houston go ahead yeah we don't think we think we can stretch the imu constraints the platforms are looking real good we have one more suggestion on the bfs before we uh go all the way to ipl uh that's to take him down to op zero load him to halt mode him to run then try 101 again ops 101 is the basic flight program that's the first stage so what we're listening to is some very complicated talk by some very contemporary people now you not only have to be able to fly the thing you've got to know all that computer lingo because the computers are terribly important and while they're examining that no launch on time today but perhaps launch later this morning we'll be back after these messages

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good morning everyone today friday april the 10th and let's go now to the launch mission control where we have the shuttle on the launch pad and a hold up the computers on board the orbiter one piece of good news was received though just recently one of the major constraints uh that has to do with the uh extension of a hold or the time that it takes uh has to do with the inertial measurement unit uh the pre-alignment of that for flight uh that is the constraint which uh originally said that we had only about 50 minutes left remaining in the hole uh while we were in this particular hole the we have heard from houston that the platform appears to be so stable that it's possible we could go possibly beyond that without recycling to the t minus 51 point in the count to begin that pre-flight alignment once again in houston and here at the kennedy space center they're continuing to work that software problem to determine whether or not we'll be able to go ahead with the launch this morning this is shuttle launch control we'll have to check on that well that's the situation you were just brought up to date on it if you're just joining us this is a special edition of the today program i have some old friends here in new places john chancellor of nbc news of course and astronaut joe kerwin veteran of the skylab mission we've been here for more than an hour now watching uh the columbia out on the launch pad and the situation first developed with the computer that you just heard described there about what was going on they've got a problem with a backup computer the software that is the instructions the memories that not listening to two of the primary computers so they've dumped it out and they're reloading it with a fresh set not a new set but a fresh set of the same software and seeing if they can then get it to link up so it will listen as it should what is going on they did have a little problem with a fuel cell early on

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problem with a fuel cell early on as well that now has been resolved satisfactorily we are in a hold the hold was originally 50 minutes but we were just told that they think that they may be able to expand that so as they work on the computer problem the scheduled launch is passed and we're waiting to see when we may get still another launch let's talk for just a moment with joe kirwan about the prospects if this does not go off today or if it doesn't go off by noon today yeah they have approximately a six-hour window uh we've held at a good time because they didn't start the power units yet and we don't have a refueling problem there uh i would uh i would expect if they didn't go today they'd uh they'd easily be able to get ready to go tomorrow would it be tomorrow or would we have to wait 48 hours joe until sunday i there's been a lot of talk about that i am not certain yeah okay but based on where we are in the countdown i have i think they could go to now do if you look at your screen there that large tank uh the tallest structure has one and a half million pounds of liquid hydrogen and oxygen in it what happens to that if they have to wait 48 hours once again i'm not i'm not certain that i wish lunch control would tell us would tell us they may very well have to de-tank and retain that's what i think yeah and that's of highly volatile stuff that's the biggest bomb in the world today this non-nuclear sitting on that pad and not a terribly thick skin to that as well that breaks up it's uh detached and breaks up we have standing by outside bob gazelle in a vip area and there he's there with astronaut jim lovell who can talk a little bit about what it's like to be sitting up there working on these kinds of problems at this hour bob hello again tom uh jim level is a veteran of four missions two geminis and two apollo so i'll ask that question what's it like when you're sitting out there on the launch pad and they you have this sort of problem well first of all when you're sitting on the launch pad uh and everything's going all right it's very very quiet as a

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all right it's very very quiet as a matter of fact there's more excitement watching it from here than it is inside the spacecraft but as soon as something happens where there's a hole you're not too sure whether it's going to go or not then you get a little bit of antsy you want to you want to go because the biggest thing is once it lifts off you know that something's going to happen it's going to go but the biggest uh thrill is waiting for that countdown to get to zero was there a problem for astronauts that they might want to overlook something to really let's get going let's get this over with no i think they're very very careful to make sure that everything goes and everything works correctly especially on this british shuttle launch what was the worst kind of problem that you ever had did you ever have a situation that was similar to this one well my problems occurred after we took off on apollo 13 if you recall we had an explosion and we had to come around and come back home again so all my problems occurred after i took off what do you think is going to happen today do you have any kind of sense of it no i don't i certainly hope that the computer problem is solved and that uh that it will lift off us within the launch window today do you think that there's any way that they can contain the excitement that they feel when they're sitting up there must be really an amazing experience to be waiting to go off into space oh it is but i think if you recall back at john glenn he had about uh two weeks of delays and you're sitting on there and going back and forth it was quite thrilling at that time too okay well thanks for coming by tom thank you robert and we're back here now we're looking at uh well you're actually looking at all the hardware around the columbia space shuttle and there's a great deal with a good deal that was pulled away during the night and there you can see it the large bullet-shaped canister the biggest one of all that's the gas tank and then the solid rocket booster is next to that and then the small stubby but elegant little plane that's the columbia orbiter and loaded in there now astronauts john young and robert crippen and they're working on a problem with the computers and as a result of that problem we're about to go 17 minutes past the scheduled launch time in a hole the problem is in a computer and they're dumping out the software and reloading some fresh instructions and we'll be back with more from cape

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and we'll be back with more from cape kennedy from the kennedy space center at cape canaveral first after this it is possible that uh we will have to recycle to the t minus 20 minute point uh in the near future depending on what determination is made in the next few minutes uh in order to harass reconfigure the kennedy space center describing the [Music] one of the determining factors in uh the ability of us to hold is the inertial measurement units we are coming to the point approximately 20 minutes from now when we would have to go back and realign them and that requires going back at least for that to the t-minus 51-minute part however the most of the systems would be held at the t minus 20 minute point and that is what the whole clock would say present time we are dumping the general purpose computers uh and having them analyzed uh at houston this is shuttle launch control okay that's the voice of hugh harris and he's been describing what is going on here we've uh we're now 20 minutes past the schedule launch time because they have a problem with the computers on board specifically with the backup computer not matching up with the four primary computers this is a computer driven space age that we live in as we well know and this is very important they don't want to send it up there without that backup computer working what they're doing is getting a reading from the managers here at kennedy as to whether or not they can do without 75 seconds worth of data so they can tie up the lines and send it all down to houston and take a look at it there where they have the experts is that a fair assemblation joe kerwin what's going on but there's one other

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what's going on but there's one other thing tom which you also heard and that is that they're running out of time a little bit in terms of some navigational aids uh and in specifically the inertial measurement unit they if they've only got about 18 more minutes of of that particular gadget being aligned uh so that it can help uh in the navigation stop me if i'm wrong joe i heard neil hutchinson in houston say that the inertial measurement units were looking so good that he could probably give them an extension on that time but if they do if they are going to get an extension and they'll know at half past the hour now yes sir if they can't get that extension they'll have to go back to 50 minutes before launch in terms of the countdown 51. i guess 51. and and to uh to realign the inertial measurement unit so you get complexities within complexities on these things let us talk just for a moment and bring you up to date why it's important that they get a launch today before noon one of the reasons it's important they don't want to land in california after dark i mean we're we're dealing with uh the time zones in this country they're due to they're due to land in california about midday out there and if they get too delayed here past noon eastern time then they would have an after dark landing in california and they don't want it because they're coming in just like this a dead stick landing and we'll be talking more about the landing procedure it's it's quiet out there now okay we have a bill lynch standing by at the white house john and uh president reagan has sent a message to these astronauts today bill well tom the president uh got up about 15 minutes before the initial scheduled launch time and like millions of other americans he's watching this coverage on television and probably has his fingers crossed that the columbia does get off on time last night he sent a good luck message to astronauts john young and robert crippen wishing them a safe and successful mission through you he said we all feel as giants once again once again we feel the surge of pride that comes from knowing we are the first

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that comes from knowing we are the first and we are the best and we are so because we are free he told the astronauts that as they hurtle from earth in a craft unlike any other ever constructed they will do so in a feat of american technology at american will yesterday vice president bush telephoned astronauts young and crippen wishing them a bon voyage and tomorrow if all goes well he will speak to them in orbit the astronauts will be in orbit not the vice president on a radio hookup from here at the white house and on sunday he plans to be in houston to meet them when they return to the kennedy space center there the president meanwhile continues to make a good recovery and his doctors this morning are laying good odds that he'll be released from the hospital tomorrow tom thanks bill kennedy space center here johnson space center in houston texas this is a special edition of the today program and my friends are in new york this morning let me say good morning now to jane paul and cliff morrison for sitting in for lord scott to keep us the best of the weather good morning good morning tom and we're watching television of course like everyone else but we're so we anticipate uh stepping off a bit into the future we're the ones or at least have a good foot in the past you got to have faith if that thing's going to get off and safely and back again well a lot of people have had faith in the chicago cubs all these years one of them bryant gumbel is at wrigley field and we think that's important because wrigley is that stadium where they don't even play baseball at night talk about a foot in the past tom well i'll tell you we've got a lot of winners the cubs are winners as well we're going to continue with our coverage of the space shuttle the launching of the columbia now in a whole situation as they try to fix one of the computers we'll be back but first this is today on nbc we're back and let's listen now to hugh harris from the kennedy space center at launch controller washingtonville in the countdown this is shuttle launch control what he just said was that they are continuing to watch the computer problem uh and that that analysis is still going on they are now expressing what uh hugh harris

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harris at launch control calls called some concern about the inertial measurement unit which is part of the navigational system here they may have to realign that that no decision has been made if they do have to realign it it pushes the countdown back even further the hold has gone on now for 35 minutes because of these various problems most of them are solved although the people who have been watching the fuel cells remember it was fuel cell number three that gave them some difficulties feel that there may be too much pressure on those fuel cells and they've switched back at least to partial power from the ground we trust you understand all that uh i think i do but i'm not absolutely certain that's what they just told us though from launch control what about that joe corbin what does that mean that they that they've just hooked it back up to a ground system instead of having they're simply now sharing ground power they they turn the ground power back on at a slightly higher voltage and it takes over some of the load does that mean that there's still a problem in fuel cell number three no not at all i think this is purely a precaution as long as we're in the hole you might as well let the ground do something we'll relieve the fuel cells of some of the burden yeah that's not a front but the computer still may be and one of the things that i find interesting about this is that you have to ask houston well we're going to go to houston right now where we have roy neil standing by and he has some uh information for us on this computer situation roy well not so much that we're like you uh tom listening very carefully here to neil hutchinson and all of his flight controllers as they work this problem over i notice hugh harris there at the cape talking about dumping data well that means they're feeding data through to the people here and all of the back rooms the support rooms are extremely busy right now studying looking this thing over particularly their concern at the moment being the inertial measurement unit that's one of the black boxes on board filled with gyros and when you get it back there at the cape you might ask joe kerwin how you how you realign those gyros because

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how you realign those gyros because they're in a black box down inside the spacecraft and the astronauts are up on the flight deck of which i have a simulator here but the flight deck does the controlling and it'll be interesting to find out well right now the biggest question seems to be however still that backup computer and whether or not it's accepting commands at this writing we don't know so we're listening very carefully for launch control at the cape and for houston's mission control to tell us exactly what it is there and by the way something else i'd like to mention at this writing there is no danger to those astronauts on the pad everything's going fine except for minor glitches but uh there is another escape system it's called slide by wire and tom that's another question for joe kirwin if you'd like to ask him i'd like him to describe the slide by wire if they had to use it okay we'll do that right we're going to have a couple of questions for him uh first of all about that backup computer that's purely a precautionary measure one of many of course on this flight you were just saying a moment ago the iron is they may never use it that's right we should go through a nominal flight on the prime computers and never ask the backup to take over control but it's still a very important backup because all four of the prime computers have the same identical set of instructions in them we're not worried about a hardware problem what we're worried about is a fault in the instructions an erroneous set of instructions which would then be common to all four of the prime computers and wipe them all out at one time that's what the backup's for it has a totally different set of software in it right roy was just talking about if they had to evacuate in a hurry while they were still on the pad they do have a kind of uh fancy getaway system up there fancy but at the same time primal yes yes which we've never had to use for real fortunately of course they have to get the white room back out get the hatch open get the crew uh across the tunnel onto the launch uh structure across to the other side of that and then they have a little uh a little wheeled cart that uh hangs

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uh a little wheeled cart that uh hangs on on a couple of wires you get in and pull the handle and off you go and slide down it must be a mile from the pad and then if things aren't really in tough shape that they can get into a kind of armored personnel carrier and drive their way out of there that's right yeah but they probably just want to hunker down there that's in the worst possible case scenario which we don't have no such problems as that yeah no i think that ought to be emphasized this morning that uh we're not having any safety problems what the the mission is experiencing is a is a computer problem essentially uh that the computers don't all tally but with a machine that complicated you can't fly it without computers you just can't get it around they have as joe kerman was saying earlier they have i believe it's six computers all told aboard they have the four operational they have one that is a computer designed to settle disputes with the other computers and then they have one they haven't plugged in i understand that they can also use there's a spare in the mid deck and should during the mission one of the computers fail they can go and plug this other one in and load it with instructions and put it into the comment set well the computers will be doing a lot of work during the course of this mission we ought to talk about those moments in which the astronauts will be kind of hands-on pilots as well i mean shortly after takeoff john young is going to take the controls when they separate from the external tank and move it away out of plane at one point right that's that's correct uh uh the powered flight portion of launch is is automatic john has a takeover capability but we hope we won't have we have a message coming up in about 15 seconds fellas this is from uh hugh harris he is speaking for the mission for the launch control from the kennedy space center here at cape canaveral in florida so we are in a whole situation they are working on the computers and now let's look at launch control at t minus nine minutes and holding uh we have been holding now for approximately 45 minutes and have approximately 16 minutes

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and have approximately 16 minutes remaining in the time before we would have to realign the imus we have been told by houston that they're extremely stable and we may be able to extend the hold slightly beyond what is normally contemplated at the present time we have not had a reading as to how we are uh [Music] we're listening now to houston uh where they are talking about what may be a the possible problem that caused the uh backup software uh to look as though it might not be satisfactory but at the present time we do not have a determination as to how long we may hold at this particular point there has to be a decision in the near future as to whether to go back to a different point in the countdown but at the present time we're at t minus nine minutes and holding this is shuttle launch control if they decide that they have to go back to the i'm looking at a clock here if they decide at half past the hour that they have to go back to an earlier point in the counter account the point at which they align the inertial measurement unit they'll have to go back 50 minutes into it and we're at a whole situation right now they're trying to fix the computers we'll have continuing coverage here from the kennedy space center on this special edition of today the time now for stationery the propulsion and the tanking and that sort of thing good morning welcome back to the special edition of today you're listening to hugh harris from the kennedy space center at cape canaveral florida as they discuss the problems with the computer we have not had a resolution yet of what the problem is was the backup of flight computer programs and are waiting for that resolution

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for that resolution before going further but right now we are changing the clock back to the t minus 20 minute point in the countdown and this means that we will go ahead and also do an inertial measurement unit realignment which occurred at the t minus 51 minute point normally this is shuttle launch control so that's an update on the situation there they are continuing to work on a backup computer problem and as a result of not getting it solved during the last hold that they had within time they had to back it all up to t minus 20. that means that the hold will continue but it will give them a better chance to work on the problem and also then to realign the inertial measurement units it doesn't it doesn't mean that the launch will go 20 minutes from now either no no it doesn't it means that we're in a hold at that point they've got all kinds of markers that they hit some of them are holes and some of them means that the clock is moving it means the systems are all in a known configuration so that they can start them down and 20 minutes later get to lift off because there are lots of little check offs that they have to go through and they have to back it up in this case because they needed the time to realign and what joe was just telling us because joe kerwin one of the astronauts if you're just joining us was just telling us that what happens is that the we're talking about a black box in effect out there the imu the inertial measurement unit and there are gyros in that right that get a little bit out of sync if you will just by their presence out there a little friction works on them and so on just so and the navigation is that critical on this kind of a flight that you can't have them it's very important at launch that the gyros be aligned very very well you know it sounds all through this as though this vehicle is so tender and sensitive that we have to have perfect computers and perfect weather perfect wins and all that this is a

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perfect wins and all that this is a first flight kind of everything should be perfect but in a year or two i think you'll find us flying with lower ceilings and visibilities will eventually have an automatic landing capability on night landing capability and it's we're going to go to washington dc at the genie school in washington d.c uh from here they've been shifting the problem between kennedy space center and the mission control in houston we're going to see that the kids at the janie school in washington dc have to say eric gordon is standing by there where they are watching all this this morning eric tom like us not only watching but waiting uh we understand in one sense that we got here a day late because yesterday there was a very spirited debate uh about the economics of the entire space shuttle and what we want to do now is see if we can reconstruct a little bit of that let me introduce the two principles in yesterday's uh well the way i was told heated debate first of all on my left you are michael spector and on my right jim mccarthy michael let's start with you pro space shuttle right yes what are the reasons that we should go ahead assuming that the technical problems this morning are resolved well it would be um very helpful scientific wise and space travel you know it would help us in the future many projects have come from space travel and the reason john's against it to social programs safe space pro program the problems only have to be solved once but with the social programs it has to be solved many times all right it sounds like you've got every angle covered and from what i understand you don't buy any of that is that right no i i don't why should we why should we not be spending all this money on the space shuttle stephen guys i think my name is i'm sorry and don't ever correct me again on the air john i'm teasing go ahead i think it's a waste of money to spend it on the space shuttle

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it on the space shuttle at this time i think we should spend it on more social programs like head start and things because many people um are affected by this and nine billion dollars is a lot of money to be spending on a space shuttle and it could help a lot of people in social programs what if we could just do this with kind of a voice vote here because the mic isn't going to reach all around but uh you do have something you want to say good spatial is very good for the society because you're saying because we're running out of oil right now and the spatial jupiter is full of hydrogen and pretty soon now they're going to be um be able to use hydrogen as fuel so what they can do is some one of these days in the near future is go to jupiter and get the hydrogen with jupiter and sell it cheaply for all people all right i have to stop you for just a second somewhat amazed by the the fact that these are sixth graders talking and certainly things i didn't know when i was in sixth grade we'll be back later we hope when uh when there is a lift off right now uh back to the cape and here's john chancellor john and you were in sixth grade what about when i was in sixth grade i knew nothing about this stuff we did however have buck rogers and all of that seems to be coming true we're in a holding situation here at cape canaveral the astronauts are safely in their flight on their flight deck this problem with the computer remains they're talking about it in houston here at the space center the kennedy space center and it's unresolved so far we are in a longer hold and for those of you who are keeping a tally of the countdown we are at 20 minutes in holding but that does not by any means mean that the spaceship colombia will lift off here in 20 minutes it looks like it's going to take longer than that some famous people here and one of them very famous in the space program a name we all learned some years ago wally sharon he's with robert bazelle now in the vip section

01:14:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=4440s)

the vip section hello again john mr shiraz is a veteran of gemini mercury and apollo the only astronaut to be in all three programs good morning mr shaw how are you today fine thank you the hardware that we're talking about having a problem here today is this shuttle a lot more complicated than the ones you than the vehicles you flew in oh it's a whole new world i think what most people don't understand about shuttle is that it's meant to fly with a lot of good equipment on board where we depended upon so many controllers on the ground to monitor the flight ultimately if shuttle does its task i don't mean just today i mean sometime in the future you'll see it controlled by the crew on board with a lot of equipment so they want that equipment to work now so they can relieve that workload we used to have on the ground well doesn't all that hardware give you the kind of problems that we're seeing now isn't is this sort of thing to be expected the first first launch of a new vehicle i was surprised that they had problems with the fuel shell we used that right and back in my gemini days in fact i i was the last battery-powered gemini chimney seven that we rounded with back in 65 at fuel cells the fuel cell has always been an awkward device it has a membrane that no one's really made the right one for i had great hopes for a fuel cell being a power plant as one in downtown new york and it still isn't producing the power we expected it would but what about these computers can you think we're going to see a lot of these kind of breakdowns in the launches at least the first few in the shuttle series i'm surprised about the computer now what they're talking about is not the computer if you request the software alone so it really means the language that the computer has hasn't been talking properly in fact i'm in that business myself and it's very difficult to make a computer understand what we want a computer is dumb it has no logic at all it is it's all put in by a man it all comes out by man so someone apparently had a glitch i hate the old expression in the computer software i asked this to jim lovell before with whom you rendezvoused in but what's it feel like when you're sitting up there and things start start to go a little bit wrong like this well you don't like it because you've had these years of anticipation so many

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had these years of anticipation so many years of training but again if you talk about the two coolest guys in the state of florida it's probably john young and bob crippen up there because they're they are fully aware of what's going on they're on the communications loop they're hearing much more than we're hearing they're involved with the troubleshooting and of course they're anxious to go but they they know that this is not a case we have to rendezvous with a lunar mission we get to be at the right time the window is big and they're in a much more comfortable seat than i was in my mercury flight i'll clear you they probably are but i don't know how comfortable they they really are all right thank you very much mr shira and now back to you tom thank you bob bazelle and wallace raw one thing about astronauts they don't seem to age he looks as young as he did when he was going off into space himself let's go to new york now james hawley standing by there with news of what else is going on in the world not much going on here right now where we sit but of course there's a lot of frantic activity uh jane at the kennedy space center and in houston as they try to fix that computer what else is happening this morning well thank you tom now let's go right back to tom at the cape thank you jane you're listening once again we have a number of harris from the kennedy space center propellants which are on board uh are not a constraint we can hold at the flight mass uh as long as necessary the uh one of the main constraints is that we have to go back and do a pre-flight alignment of the inertial measurement unit uh this occurs at the t-minus 51 point in the countdown and this can be done without recycling all of the other elements back that far the other elements of the launch vehicle and the ground support can stay at the t-minus 20-minute point uh one of the main constraints as far as picking a launch time is the crew rules the doctors have determined that the crew should not remain in a horizontal position in their seats on the pad for longer than six hours and do not want to have them

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six hours and do not want to have them awake between the time that they're awakened and the time they have their first sleep period in space longer than 20 hours at the present time this is not a a serious threat to our recycling the countdown however it is one thing which has to be considered at the present time we are standing by for an estimate of when we can target the the countdown for we have not had a resolution from houston or from here at the kennedy space center of whether or not the backup flight software is a proper configuration or not it has been determined that one portion of that computer program has never been run before in in the simulations which have been conducted and that is presently being looked at very hard uh it is being put through the facilities in houston uh which determine whether or not the computer programs are valid or not so we're standing by here uh for a determination of a target liftoff time and also for a resolution of what needs to be done on the flight uh the backup flight programs we're at t minus 20 minutes and holding this is shuttle launch control all right that's a pretty thorough briefing on where we stand they don't have a launch time scheduled yet for the launching of the columbia because they're continuing to work on the backup computer problem which wasn't listening properly to the four primary uh computers this space shuttle has been plagued by problems in the past it's about two years overdue overdue this morning here and it's now uh just about one hour past its scheduled launch time and they are not able to come up with a new one yet we are at t minus 20 at this time and holding they started the clock once again and then they held it as you could see right at 20 minutes it strikes me joe kerwin a little bit

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it strikes me joe kerwin a little bit curious that one portion of that backup software had never been run before were you aware of that no i wasn't not at all and it strikes me as a little curious too it must have been a last-minute patch to the software as as they call it and it must have looked on paper like such an innocent little patch that it wouldn't interact with any of the important software and it may not be the problem melissa often happens perceived innocence can be uh real evil and in this case they're continuing to work on the problem we still don't have a launch time but we will continue our coverage from the kennedy space center and the launching of columbia the space shuttle but first this word there she sits out on the launch pad you can uh if you were to be close enough you could see the orbiter columbia with its two solid fuel rocket boosters and its large external tank that's the large bullet shaped canister that you see the largest of the white pieces of mechanism that you see before you they are not able to give us a time yet on when they may be able to launch the space shuttle after more than two years of delay some last minute problems developed here this morning and first a computer and then a fuel cell and then once again the computer problem was not resolved and that's what they're at work on now sending information and discussion back and forth between kennedy the space center here at cape canaveral between the columbia orbiter and the johnson space center in houston texas they're also talking about the possibility of having something to do with the configuration of the astronauts they're in a horizontal situation they're back like this a lot yes i i would take issue with wally that his mercury seat was was less comfortable that was an individually molded couch as you recall these guys are in a standard airline type seat without much padding uh they're uh lying horizontal you're a doctor you're a doctor why would the doctors be

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you're a doctor why would the doctors be worried about them being in that kind of a shape for about six hours i mean we spend uh six hours sleeping oh it's six hours of inactivity more than anything else aren't their feet in the air in a sense that their feet are up and the in the blood would run toward the head and it's a little bit like being upside down or being a negative g and that that negative g that is the acceleration pushing the blood toward your head is going to be more intense during launch they get about 1g negative out of 3g total uh during launch that's not harmful we've simulated it but you don't want to pre-load them too much okay however that's a soft limit six hours i think you'd have to uh pry john and out of there with a shoe horn yeah there's a chance to go and dr kerwin as well they were talking about the the doctors didn't want them to go 20 hours without that's right 20-hour day is a is a prudent limit so that a fatigued crew member won't make mistakes okay but what they can do in this case is to eliminate some of the activities at the end of the first day let the crew go to sleep uh more or less on time and pick those up in the morning so they've got flexibility there too so we're in pretty good shape the big problem remains the computer and getting that solved that's right we just don't know when that's going to get done john and are programmed their software is go you know it's interesting to me tom that we got down to nine minutes before this thing was going to go off the engines were turning on the chase planes everybody was ready and it looked it wasn't as though it wasn't going to have any problems i wonder what the chase pilots are doing they're probably back getting a load of fuel and at this point in the countdown i think they've turned their engines off i think it calls for that at that point well they're probably like us they're listening for further word here from uh from the kennedy space center it's the problem has been going on for quite a long while now and coming up just now tom uh we are one hour behind launch right as of this minute all right seems like a good time to take a station break

[01:24:05 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=5045s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=5045s)

fugitive from the empire a world premier movie death trap trap broadway's smash comedy thriller is an evening of laughs and screams and fun and games and murder [Music] ireland's death trap is sheer terror and pure delight death trap starring farley granger on broadway at the music box theater murderously fun america's first space shuttle frankfield reports on news 4 new york we're back let's listen now to hugh harris who's speaking to us from the kennedy space center portion of the mission and the fifth one is designated the backup the backup computer has not been communicating properly with the other four computers during the checkout and an examination is being made of the a backup computer program to determine whether or not the trouble lies in that particular program at the present time we are standing by for a determination of a target launch date or a target launch time actually uh today and then we'll begin with the inertial measurement unit pre-alignment and go down through the countdown so that if the problem is resolved we will be able to have the launch this morning this is shuttle launch control well tom that last uh didn't sound so optimistic if the problem is resolved we'll have a launch this morning that's the first time i think that uh hugh harris has used that particular formulation [Music]

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we're just listening to chatter now between communication well one of the things that strikes me is that when they first began to work on the computer problem joe crow and you would be able to tell us about this they they talked about well when do you think you can get it fixed 15 or 20 minutes we haven't heard anybody referring to any kind of a time frame here in the last 40 minutes or so no we haven't and of course they're looking at that software now they they transmitted a a copy of all the software in that computer back to houston they're looking at it they may be seeing some uh some little problems or in inconsistencies in it why are there so many problems with the space shuttle it's just too big and complicated a project to get off the ground the first time well i'm remembering back to uh the launches of both alan shepard and john glenn and it seems those were scheduled several times i remember wally's launch on germany 6. remember that where the engines ignited and then immediately shut down and there was no lift off when you're working with a new machine admittedly this one's very very complex uh you have to expect this well our expectation is here yeah and we have problems this morning and we will continue to watch those problems and hope as you do i'm sure that they get sold and in time for a launch and we'll be back after this we're back with our continuing coverage of the delayed launch of the columbia space shuttle as it sits out in the launching pad at cape canaveral the kennedy space center as they continue to work on a problem with a backup computer they are working on the problem of the software that is the instructions the memory uh not listening to the two of the other four primary computers at least that was the early on definition that we got it may be more than that at this point they're working on that problem here at the kennedy space center at the johnson space center in houston texas and of course on board as well we haven't heard anything from them for a while the last thing that we heard is that they were not able to give us a definite target launch time they were

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a definite target launch time they were working on it and if they get the problem solved they will then begin to get us get us the that we are at t minus 20 and holding they had to in effect turn the clock back a little while ago so that they could do some realignment of onboard navigational aids as well you know tom what i find interesting about this is that we knew about the four computers and then the one computer that was added to that to be the referee in case the other computers didn't agree and it is that referee computer if we may call it that that is the one that's having difficulty communicating with the other four the basic computers as far as i can tell are in fine shape yeah it is simply a fail-safe fail the fail-safe failed and what we have here is a little problem in communication that's right and it could in fact delay this launch for quite a long time to come it may not go today as a matter of fact if this go goes on at this time although we still have a window of another four hours at least so we'll continue to find out what they're doing here and we will be back with more of this special edition of today covering the launch we hope of the columbia space shuttle but first the station right [Music] so [Music] good morning everyone this is today friday april the 10th and there she sits all dressed up and still can't leave her launching pad we are talking about the columbia space

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are talking about the columbia space shuttle the launch of it has been delayed now officially one hour and ten minutes and the delay will go on as technicians here at the kennedy space center in cape canaveral florida and at the johnson space center in houston texas continue to work on a problem with the backup computer officially called the software problem because what they're trying to do is try to align that backup computer with the four primary computers good morning all i'm tom brokaw here with john chancellor who joins us in the special edition of today and joe kerwin one of the astronauts an md and a veteran of the skylab mission well that's where we stand right now there's no resolution of the problem they don't even give us a tentative launch time at this time in fact about 10 minutes ago we heard that they were in a hold and that they would try to get back to us when they might have a probable launch on the other hand if you just joined us we have we can we still have four hours here in which this machine could take off and uh it's fully loaded as a matter of fact it's got more fuel on it than you could possibly imagine a million and a half pounds of liquid hydrogen and oxygen in that big tank and two million eight hundred thousand pounds of solid fuel in the in the solid boosters the astronauts have been in there now oh something like four hours yeah and they were just saying to us though uh from john and i had raised this problem of what you do about the propellants on board and they said that is not a problem for them for the time being at least the propellants are not a constraint for them well that's the situation as it now stands they are working on the computer problem we are standing by as soon as there is some new development here at the kennedy space center we will bring it to you instantly we will go now to roy neal who is at the johnson space center in houston texas with another astronaut boy and we're not taking any bets as to just when that target time of launch will be but this is colonel gordon fullerton who's with me he's in a flight suit because once that bird gets off the deck this morning you're ready poised to leap off and go out to edwards air force base just in case colonel fullerton you've

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just in case colonel fullerton you've just come to us from mission control what's going on over there as i understand it everyone's standing by watching the systems as they wait for the computer analysis to be done and to try to find this bug that's popped up in the backup fight system well you know as we look at mission control it's a quiet place all the noise all the confusion all the fury is subsurface everybody talking and every now and then we hear some talk to the astronauts in the ear but that's about as far as she wrote but right now they're worrying about software and i guess the biggest question i have at the moment is if i sit here in our nbc mission simulator and i push buttons on a computer and the computer doesn't talk back to me with the language i expect i just punched some more buttons and put a new program in there why can't they just do that and get on with it well i you have to first understand that uh this aircraft depends on the software in every respect the computers are not just a a peripheral piece of equipment to give you some added information and the airplane flies along without it if it can't do that the the when the pilot uh moves the stick here unless the computers are working and working properly uh the control surfaces won't move the reaction jets will not fire properly and in fact it cannot fly safely but colonel fullerton we've been told that everything in these computer programs had been checked out and yet this morning we heard for the first time this is one that had not been simulated the backup computer programming how's that possible no it's been uh the entire sequence has been simulated many times you have to realize the complexity uh first of all we have four computers in the primary guidance navigation and control system that are all working in concert and then the fifth computer is programmed with a entirely different program

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entirely different program but it must cooperate with the primary four and when you're talking about millions of bits cycling uh through uh routines every second really and uh one of those bits out of place due to just a timing problem that wasn't anticipated or had never showed up before it can happen and evidently that's what's happened here gordon fullerton do you think we're going to launch this morning just in the line uh guesswork 50 50. i i really uh not in a position to say i i think they might be able to find a misplaced bit and reload that backup computer and proceed on and just as we practice many times but only time will tell and the people that are in the software development lab here at houston are examining that program uh bit by bit to be sure that what was in there is understood and if they fix it they know that it's healthy for a safe launch john chancellor that puts the ball in your court thank you well we're all waiting here not only uh the astronauts on pad 39a and the people in launch control but uh what may be up to a million people who come here to cape kennedy cape canaveral to watch the launch and jim cummins is with one of them now we're still standing by here on the bank of the banana river about five miles from the launch site where tens of thousands of people here behind me have pretty much settled in for the morning most of them are workers workers that people who have worked on the space shuttle project including tom miller standing next to me here tom works in quality control a place where they inspect every nut and bolt that goes into a spaceship like columbia are you frustrated by the delays as somebody who's worked in this not really why not personally i'd rather see them holding and have something happen

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them holding and have something happen you know if we work too long and too hard to see something go wrong on the pad i'd rather have them hold it if we have to scrub it that's fine you know what what we're concerned about is the people sitting there we want them to go up and come back all right this is kind of this this thing is ingrained in the people who work in the program then to uh to be patient i would think so if they're not patient uh i don't think they you know they could hang around too long there's just too many things we go through to put something like that up how long can you hold out in this balmy weather out here well i've been up all night you know i've worked over an equality group all night i got off and came over here i'll be here until they scrub where they send it up that seems to be the attitude with most of the people here they are very patient some people have brought out their grills are frying bacon drinking coffee someone offered me a can of orange juice i talked to one man from who drove all the way here from california and says he's not going home until he sees it go up and one man said to me he says you know we work for the government and we never forget that old army refrain hurry up and wait tom thanks very much jim well there's a lot of hurrying up and waiting out there today because even after it goes off i can assure you given the number of cars in this area they won't be able to go anywhere for a long time practically welded let's go now back to new york jane paul is standing by in our today studios and she has an update on what else is happening in the world good morning we're back at the kennedy space center at cape canaveral florida where there is a continuing hold for the launch of the columbia space shuttle but we're about to get an announcement from launch control here and we think that they may say that they're going to try to pick up another date or another time party within one minute 20 minutes and holding at the present time the launch team and director launch director george page are discussing

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discussing the beginning of the inertial measurement unit pre-alignment uh once we start the pre-alignment the earliest that the launch could take place would be approximately 81 minutes from that point if we should not be able to go today uh it probably would be necessary to recycle until at least sunday one of the constraints in the preparation of the vehicle uh calls for a 24-hour conditioning period for the liquid hydrogen tank once we have filled it with hydrogen and then drained it again if we uh stick to that conditioning criteria we would not be able to make the beginning of the window tomorrow at the present time a discussion is going on as to how soon we can start the pre-flight alignment uh to give us a chance uh for a launch today during that period when we're doing the pre-flight alignment which takes 51 minutes and then transitioning to the uh the launch of the final launch ground programs it would take approximately 81 minutes from that point before a launch could occur what we're hoping will happen is that during that period a determination will be made of how to solve the problem with the uh the backup computer not communicating properly with the uh four ascent computers at the present time the program from the backup computer is being analyzed and run on comparison uh systems at houston to try and determine whether it is proper we're standing by to begin a realignment of the inertial measurement unit at the t minus 20 minute point in the

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at the t minus 20 minute point in the count and holding this is shuttle launch control joe can i ask you a question joe kerwin what what do the computers have in them what kinds of instructions are we talking about [Music] good morning everyone well there it is that's the columbia space shuttle orbiter out there on the pad at cape canaveral the kennedy space center it's being stood up at this hour by a

01:42:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6120s)

it's being stood up at this hour by a faulty computer a backup computer and what you see coming out of the top of what is the external tank that's the gas tank for the orbiter is a little venting we guess judy resnick our resident expert here an astronaut from houston is with us this morning and that's what is loaded with an enormous amount of hydrogen and oxygen and they have to let some of it off from time to time some of the gases that build up that's correct is that a good lay expression of what's going on all right let us tell you now what the situation is they are in a hole they're trying to fix the computer problem they have just talked with the astronauts and told them they are shooting for a 10 30 a.m eastern time launch time that doesn't mean that they're going to hit that time that's just kind of a target that they're working toward now we continue to be in a hold of t minus 20. these are the markers that they hit along the way so that they can go back and work on the navigational systems that have to be realigned whenever there is the delay of this kind well if the delay goes on they're supposed to launch they're going to try to launch now in about two hours but if it goes on much longer after that then they're going to have to recycle as they say take the fuel out of the external tank and then put it back in again and that's a very complicated business and it will take us until sunday so it's possible that we may have a launch on sunday morning rather than on friday morning okay it's still friday morning right now it's friday morning the days tend to blur but it would be a 48 hour delay if they can't make it within the next three and a half hours the astronauts now they've been up for about seven hours and they continue to ask them if they're comfortable so far no complaints that i've heard most of the conversation from the flight deck of the columbia pretty cryptic they want the problem solved and they said outstanding a little while ago and it looked like they might have a 90 minute target for a launch let's get a report from mike siemens and how their day actually their very early morning went early this morning when they got up at about one thirty at two o'clock eastern time the most dangerous part of preparing for liftoff occurred columbia's fuel tanks were loaded with

[01:44:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6240s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=6240s)

columbia's fuel tanks were loaded with volatile gases by remote control there were no problems and the countdown continued as astronauts john young and robert crippen were waking up after a 10-minute medical examination young and crippen were joined by space officials while they had steak eggs toast orange juice and coffee for breakfast on board columbia they'll take in 3000 calories a day by eating rehydrated food heated by an electric food warmer they'll bring with them future space shuttle crews and passengers will dine from a galley next the astronauts got into their new shuttle space suits they're lighter and easier to move around in than the ones worn by astronauts on earlier missions in space technicians found a minor air leak in krippen's helmet it was fixed on the spot a short time later young and crippen left in the van so familiar from other space flights and headed for launch pad 39a and the white room there the closeout crew got them ready to enter the shuttle this was the moment the two astronauts have been waiting for after three years of training to fly colombia this will be command pilot young's fifth flight into space for crippen his first since becoming an astronaut in 1969. they were locked inside the shuttle at 507 eastern time but with just nine minutes left before liftoff two problems developed one with a fuel cell generator the other with a backup computer at 7 27 eastern time controllers told young and crippen the delay could be an hour and a half or more shuttle commander young said we feel like we'll be here we're strapped in and ready to go ike siemens nbc news at the kennedy space center we are now listening to uh john we're watching john chancellor listening to hugh harris from the candidates let's just go in and pick it up now see whether properly uh at the present time work is underway uh to uh get ready for the pre-light a free pre-flight alignment of the

[01:46:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6360s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=6360s)

a free pre-flight alignment of the inertial measurement unit that comes at the t-minus 51 minute point in the count however that's approximately 91 minutes [Music] from the uh from a liftoff we're in the process now of resetting the clock back to the one hour t minus 60 minute point in the countdown however the the setting of the clock does not necessarily mean that that is exactly how long it's going to be before a liftoff so we're standing by here as they continue to discuss the problem and work the problem this is shuttle launch control well there you have it what what we didn't hear tom uh was that he was saying that work was underway to redump uh that's a word we ought to explain to to take some material out of that backup computer uh they're doing that again they are also at the same time making an assessment of the function of this computer and how it's relating to the other four and the inability to communicate and they confirmed what we had heard earlier the earliest launch of the space shuttle today would be no earlier than 10 30 eastern standard time they are resetting the clock you've heard that to uh get the inertial um um inertial measurement units inertial measurement units realign the gyroscopes in that realign so that's where we stand now we're waiting judy it sounds very tentative to me at this point i think it is uh all we can say right now is that they're cycling back to the point where they're going to try again start the countdown again and see what happens but uh there's no indication that they've solved the problem certainly no i don't think so i think they're going to retry i don't think they know exactly what the problem is with present time that's why they're going to retry we're going to continue with our coverage here of the delayed launch of the columbia space shuttle and then we'll get more news from jane pauley in new york after this

01:48:05 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6485s)

after this um eastern standard time this morning approximately an hour and a half from now this is hugh harris from the kennedy space center during this period of cape canaveral bringing something in the situation here free pre-flight alignment of the inertial measurement unit one of the time critical factors uh in the launch at the same time we will be continuing to troubleshoot the problem with the communications between the backup computer and the other flight computers on board the orbiter hoping that the solution will be found and that we will be able to proceed uh to the launch at 20 minutes after 10 eastern standard time this is shuttle launch control tom let me say first i don't think he means 20 minutes after 10. because they're going to start the clock at 9.50 and uh but what's important for you all to understand is that that's just a target at this time they have not solved the problems you heard him say we will continue to troubleshoot the computer problem they still have problems with the fifth backup computer it's not communicating properly with the four primary computers on board it is a fail-safe computer that has failed as we have been saying some this morning they probably wouldn't need in the course of this flight but they don't want to go up there without it is what the situation is in the meantime they also have to realign the imus on board these are navigational aids the inertial measurement units judy it sounds like the frustration just goes on well that's what it sounds like but everybody's working hard and we're trying to get it going and do they i'm just gonna say we're in a very iffy position now in terms of the launch today i think go either way yeah around noon is the uh is the outside limit for all of this that is we've we've been talking about a window

01:50:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6601s)

we've we've been talking about a window as they like to describe it of about six hours altogether because what happens is you get darkness at the other end during the landing and they don't want to have that that's correct that's gonna be tough enough in broad daylight it seems to me or at least it uh it spooks me a little bit as i look at it it's very broad daylight out there now and robert brazell has a guest for us in the vip area robert hello again with me now john is dr brian o'leary who was a an astronaut for a while even though he never took a space flight dr o'leary now is an expert uh he writes on the subject of what space holds for us in the future dr o'leary good morning and uh we assume that the shuttle is going to go someday if not this morning someday soon what does this mean for us in your opinion well i think it's going to be the most important single event in the history of the space program because once the shuttle starts flying routinely we're going to be able to haul huge tonnages into orbit and what i mean huge tonnages i'm talking about thousands of tons this will enable us to build an industrial base in space what is what would an industrial base in space do for us that all our industry here on earth isn't going to do for us well uh first smaller things like communication satellites pharmaceuticals ball bearings manufacturing things but later on what i see is an explosive renaissance in the 1990s which is nothing less than removing the limits to growth of our very finite planet by that i mean mining the moon and the asteroids building huge solar collectors in space to provide energy to the earth uh growing food in space recovering on the earth but one of the things that we've heard a lot about the shuttle is that it's going to be used a lot for military uses and part of this building in space we here is going to be for future stations for space warfare a new era of threatening warfare isn't that part of the problem well right or wrong better or worse the cold war is alive and well and the military rationales and the political rationales just like around the time of sputnik may be the unwitting foot in the door toward an economic renaissance uh with the soviet union uh their their

01:52:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6720s)

uh with the soviet union uh their their space program they're going to be having a 12-man permanent space station by 1985. they're going to have a booster that's twice the thrust of the apollo saturn 5 by 1983. these are the kinds of sputnik type of events and in the atmosphere of the cold war that i think will get us into this renaissance that i'm talking about this means space colonies people exploring the planets first hand i i see it all turning around sometime in the 1980s and the reason for this is not only uh because of fear and because of foreign pressures it's because there's an increasing awareness among americans that our space program needs to get back off the ground and you think the shuttle is bringing us there the shuttle is is the truck that's going to be able to bring us here but we we need more than the shuttle we need to put things into the shuttle okay i think i think there's some people he's planning to do that dr o'leary thank you for coming by tom thank you bob dr larry so far our truck is stolen in this parking place here this morning at cape canaveral the kennedy space center as they continue to work on the backup computer problem they are now giving us a tentative launch time of 10 20 a.m eastern time that's in what one hour and 30 minutes all together jane pauley will be back here in just a few moments talking with the first woman to ever had the commandants at a u.s military academy first this word it is you paid for it take a look at it ten billion dollars worth of space hardware still on the launching pad here at the kennedy space center at cape canaveral it cannot get off the ground because there is a problem with one of the computers at least one of the computers that they continue to work on here at the kennedy space center also at the johnson space center in houston texas and on board the columbia space orbiter where robert crippen and john young have been there now for several hours they had hoped for a launch time of 6 50 this morning that has been rescheduled till 10 20 eastern time this morning about an hour and no 25 minutes from now that does not mean that they'll necessarily get off the ground then

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necessarily get off the ground then because the fact is they've not solved the problem with those computers they're also in the process of realigning or recycling as they say the inertial measurement units those are the onboard navigational systems and the black boxes so that's kind of where we are at this time well and what we're doing is the astronauts have been in the uh in the columbia now for about four and a quarter hours they are lying on their backs on airline seats with their feet in the air as you would if you turned a chair over and they seem to be perfectly fine and they're in superb shape but it has been a long time waiting and the countdown now is going back to do redoing things that were being done here at the cape at between four and five o'clock this morning so this is a very serious hold and as tom says no guarantee that they'll fix the problem with the computers and that the columbia will able to be able to lift off there was something said just a few moments ago by hugh harris here it says that they're going to compare the computer program to make sure that the proper program had been placed in the computer is there a possibility that they put the wrong program in that backup computer i don't think that's quite exactly what it means it's you want to make sure that that all parts of the program were were transferred correctly without any errors when it was transferred from the mass memory unit into the computer okay this is judy resnick one of our resident expert astronauts with us this morning we'll obviously continue our coverage of the delayed launching of the columbia space shuttle right after this station break [Music] so [Music] good morning everyone this is today it is friday april the 10th and you have not overslept necessarily this morning this

[01:56:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=6960s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=6960s)

overslept necessarily this morning this is a special prolonged version of today as we continue our coverage from cape canaveral the kennedy space center you are looking at the columbia orbiter of the space shuttle system still on the ground now about two hours and 10 minutes past its originally scheduled launch time we're looking at a launch time now of about one hour and 20 minutes from now but there's still a problem and it has not been solved and the problem is in a backup computer system we have been talking about it at length they have been working on it now for more than two hours and yet they've not been able to come up with a solution to the problem hello i'm tom brokaw here with john chancellor and with joe kerwin one of the astronauts from houston who's with us he was a veteran of the skylab mission also an md uh joe was just saying a few moments ago you think that they maybe have a plan for dealing with this problem we were just told let me just bring one little piece of news here just as we came back on the air they were talking about going ahead and starting the realignment of the imus the navigational aids that we've talked about all morning that'll take another 48 minutes they say to do that that means at about 9 48 they'll finish that but that's really not what's the main thing no no thing is to decide if the computers that backup computer can talk to the other computers with any harmony at all let's ask the question that we were just asking off the air which is once they have figured out what the problem is how long will it take them to determine whether or not their answer is correct by having them talk to each other and reloading and everything well it's it's hard to say because most of the work now has been going on off the loop if you've noticed for the last hour or so it's it's gone into the hands of the experts but i think that they came up with a plan an hour or so ago to manipulate that software identify a fault verify a clean load and load it into the onboard computer and they told george page it would take x minutes and he set his new his new liftoff clock to that time that doesn't mean that they necessarily will succeed but it means if

01:58:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7080s)

necessarily will succeed but it means if they do succeed it'll take that long and once they have it loaded in the computer i think all they need to do is bring the computer up mode it to the launch mode and look at the crt and if everything uh checks out let's back up we'll break that down yeah a little bit ahead of ourselves here well not ahead of ourselves but i think that we got into a language that you're very familiar with and the rest of us aren't necessarily i have to use perfectly but we have to carry tom yeah that's right it's john's turn to get me is john's trying to get me in this in this case uh let's back up to that point of once they identify would it have been an error of in the data of some kind or an improper vote it may have been something as simple as a zero that should have been a one or a one that should have been a zero uh when they loaded the software into the computer that the load didn't take quite perfectly okay although you know joe there is one question that if i were covering the briefing that they're going to have on this i would certainly ask and that is that the uh launch control told us that one portion of that software program uh one set of information had never been run before and maybe that maybe that was just a mix up but that's something that people are obviously going to ask about oh yeah they're going to ask that and i would be very curious about it too but we we haven't heard enough about it to uh to speculate that that information goes in in what i think they call kilobits per second i mean it really goes fast that's right thousands and thousands are literally several million ones and zeros so do you think that you could load a computer you take stuff out of it have a look at it design a program or something around and send it back into the computer in thousands of little bits of information per second in what half an hour oh much less than that you can load one of those computers in a couple minutes and in fact the crew does it on board during the flight from the mass memory unit into the computer doesn't take long at all if they find the problem

02:00:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7200s)

the problem when they talk about the troubleshooters that work on this who are they talking about they're talking about uh computer experts at houston who run the software development lab and their contractor experts from ibm and in this case rockwell and their subs who have developed that program software they are running that software simulating the pre-launch period and trying to identify which word or which bit in that word is inaccurate and is giving them the the wrong wrong solution all right we're going to go to houston now where we have roy neal standing by in nbc's version of the flight deck it looks a lot like it but if roy pushes a lot of switches and a lot of buttons the difference is he won't get off the ground but he will get on the air this morning with our help roy how are you i think we're on thank you tom with uh colonel gordon fullerton who with me has been listening avidly waiting for things to happen gordon what's going on right now here in houston i think uh as joe just explained the action is all in the back rooms not in the primary control room we have the primary flight controllers watching their systems which are still all go but waiting for word from the software experts as to what the problem is and what the fix might be you know i was intrigued we've got this nice uh reproduction of the flight deck i was intrigued by something you were telling me a little bit ago which is how the astronauts actually use that backup computer what what flight controls are used and what controls they might be working with right now could you give us some small idea just using some of our hardware here to show what that software is not doing all right uh the the primary flight software is in the first four of the five computers and the backup software is in the fifth one the the first four are normally the ones actually flying the aircraft but uh the the backup is following along

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the the backup is following along listening to the data being processed by the primary and that's the basic problem this morning it's only listening on half of the communication paths that of the four that it shouldn't be it's only listening didn't even show up till they were about nine minutes down on the count of that planned hold that did it but that's when we actually mowed into uh to the launch software and where this uh four working the problem and the backup listening uh configuration is first initiated and that's why i didn't didn't show up until then now generally the crew will keep uh this center display of the three television cathode raytube displays uh assigned to the backup computer so that they can watch uh its status and its opinion of how the launch is going while they're on the way up so that's really what they're focused on now although our display has nothing to do with their display at the moment that's correct um and if if anything goes wrong then uh with the primary uh set uh and it's determined that that it cannot adequately complete the launch trajectory the crew would engage this backup computer by uh pressing this red button found on top of the control stick well let's hope that a little later today they will be able to press that red button and thereby activate a backup computer that would work when as and if they get around to a flight status hopefully they won't have to use it but uh we want a healthy one in case they do absolutely tom let's get back colonel thank you rory neal we're back here at the kennedy space center and i'm going to show you how the time is being passed by some notables that's the governor of florida that's governor robert graham out there in his shirt sleeves playing catch in fact he's about to 20 yards away from where we're sitting right here you can look out the window and see him as well a lot of people have been out here for many hours now i know nasa is not thinking about us and the discomfort or the impatience of the folks who are looking in they've got problems of their own the

[02:04:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7441s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=7441s)

they've got problems of their own the governor of the visitors on this mission they've all been here since all about three o'clock or four o'clock this morning because the traffic was so bad we'll have continuing coverage of the delayed launch of the columbia space shuttle from the kennedy space center at cape canaveral but now we're going to go back to new york where jane pauley has more news for us jane thank you tom and the mvip the most important person president reagan up early this morning he has been following the coverage of the space shuttle and its problems this morning we'll get more on the president from bill lynch who is at the white house morning bill good morning again jane the president got up about 15 minutes before the scheduled launch of the columbia but he like many millions of americans were disappointed that it did not get off on time he's been watching the continuing coverage on television in his hospital room but meantime has found time to have a 20-minute meeting with his chief of staff jim baker and key aid mike deaver he took a walk at about 7 25 up and down the hallway outside his room and then he sat down to enjoy a breakfast of granola and juice and coffee the president's key aides are now making plans for him to leave the hospital we expect him to come home possibly tomorrow still waiting for a launch we expect to hear in a few seconds from uh launch control we understand they'll talk to us in a few seconds to give us an update you see the countdown clock 32 minutes and seven seconds but uh we're actually aiming for a 10 20 launch we may find out more about it now uh from launch control this is shuttle launch control at t minus 31 minutes 55 seconds and counting uh many of the activities which normally fit into this particular part of the countdown have already been performed and grow corridors not as many being happening as uh had been previously we are still in the uh the mode of pre-alignment of the inertial measurement unit and are looking for liftoff approximately 10 20 so pretty soon because of the

[02:06:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7560s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=7560s)

20 so pretty soon because of the astronauts own pressure this word capsule disappeared and the thing became known as a uh as a spacecraft now i understand and i'm sure joe kerwin uh could uh if he's willing to could fill us in on this well let's see if he's willing to he's listening there's been quite a um actually a behind-the-scenes fight as i understand it among the older astronauts particularly to have a little more control of this uh columbia spacecraft to and you know now we've got five computers four of which are working this morning uh and as and the fifth computer is kind of like an arbiter for the other uh uh uh for the other four uh and there's been a kind of room uh argument whether there should be a white room uh uh atmosphere in the

spacecraft what do you think joe crow when you're listening come on we hit it we hit a distraction oh well i wanted to ask tom do scientists astronauts have the right stuff didn't say anything i noticed you joe i noticed you walking around with that that the fighter jock roll in your walk uh i've carefully copied joe he was a tom wolf was asking the question about whether or not they were fighting for more control of the columbia especially whether they wanted it to be a more flyable airplane this one yeah whether these guys were going to go up in it or insisting on having a little more control manual control but at some point yes but i think we've got it i think we've won most of those battles and and my view of it is that that this fight which started back in the mercury days uh gave uh american astronauts considerably more control over their vehicles right through gemini apollo and now shuttle than the soviet cosmonauts have ever had over theirs and that that's given us a more capable vehicle i'm proud of us what about uh tom wolf you've been watching uh captain robert crippen he has to have been cast in this role he looks perfect as an astronaut doesn't he well now in a way i have felt sorry and

[02:08:02 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7682s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=7682s)

well now in a way i have felt sorry and now we don't have to feel sorry anymore but for the all the people in robert crippen's group he was in the last group of astronauts the seventh group they were people who had begun in the old manned orbital laboratory program of the air force and this was that was going to be the military space station this is going back now to the mid 60s and now almost two decades down the line we're finally beginning to have this space platform uh that will have military applications civilian applications and and so on but he's had a long wait i mean he's he's not a he's 41 years old now well he's strapped in and as they say strapped in and ready to go if we can get this thing done today thank you tomorrow for sharing your considerable insights with us we'll be back in a moment this is today on nbc [Music] good morning everyone well there it is that's the columbia space shuttle orbiter out there on the pad at cape canaveral the kennedy space center it's being stood up at this hour by a faulty computer a backup computer and what you see coming out of the top of what is the external tank of the gas tank for the orbiter is a little venting we guess judy resnick our resident expert here an astronaut from houston is with us this morning that's what is loaded with an enormous amount of hydrogen and oxygen and they have to let some of it off from time to time some of the gases that build up that's correct is that a good way expression of what's going on all right let us tell you now what the situation is they are in a hole they're trying to fix the computer problem they have just talked with the astronauts and told them they are shooting for a 10 30 a.m eastern time launch time that doesn't mean that they're going to hit that time that's just kind of a target that they're working toward now we continue to be in a hold of t minus 20. these are the markers that they hit along the way so that they can go back and work on the navigational systems that

[02:10:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7800s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=7800s)

work on the navigational systems that have to be realigned whenever there is the delay of this kind well if the delay goes on they're supposed to launch they're going to try to launch now in about two hours but if it goes on much longer after that then they're going to have to recycle as they say take the fuel out of the external tank uh and then put it back in again and that's a very complicated business and it will take us until sunday so it's possible that we may have a launch on sunday morning rather than on friday morning it's still friday morning right now it's friday morning the days tend to blur but it would be a 48 hour delay if they can't make it within the next three and a half hours the astronauts now have been up for about seven hours and they continue to ask them if they're comfortable and so far no complaints that i've heard most of the conversation from the flight deck of the columbia pretty cryptic they want the problem solved and they said outstanding a little while ago and it looked like they might have a 90 minute target for a launch let's get a report from mike siemens and how their day actually their very early morning went early this morning when they got up at about 1 30. at 2 o'clock eastern time the most dangerous part of preparing for liftoff occurred columbia's fuel tanks were loaded with volatile gases by remote control there were no problems and the countdown continued as astronauts john young and robert crippen were waking up after a 10-minute medical examination young and crippen were joined by space officials while they had steak eggs toast orange juice and coffee for breakfast on board columbia they'll take in 3 000 calories a day by eating rehydrated food heated by an electric food warmer they'll bring with them future space shuttle crews and passengers will dine from a galley next the astronauts got into their new shuttle spacesuits they're lighter and easier to move around in than the ones worn by astronauts on earlier missions in space technicians found a minor air leak in krippen's helmet it was fixed on the spot a short time later young and crippen left in the van so familiar from other space flights and

[02:12:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=7920s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=7920s)

so familiar from other space flights and headed for launch pad 39a and the white room there the closeout crew got them ready to enter the shuttle this was the moment the two astronauts have been waiting for after three years of training to fly colombia this will be command pilot young's fifth flight into space for crippen his first since becoming an astronaut in 1969 they were locked inside the shuttle at 507 eastern time but with just nine minutes left before liftoff two problems developed one with a fuel cell generator the other with a backup computer at 7 27 eastern time controllers told young and crippen the delay could be an hour and a half or more shuttle commander young said we feel like we'll be here we're strapped in and ready to go ike siemens nbc news at the kennedy space center all right we are now listening to uh john we're watching john chancellor listening to hugh harris from the candidates let's just go in and pick it up now see whether properly uh at the present time work is underway uh to uh get ready for the pre-light a free pre-flight alignment of the inertial measurement unit uh that comes at the t-minus 51 minute point in the count however that's approximately 91 minutes [Music] from the uh from a liftoff uh we're in the process now of resetting the clock back to the one hour t minus 60 minute drop point in the countdown however the the setting of the clock does not necessarily mean that that is exactly how long it's going to be before a liftoff so we're standing by here as they continue to discuss the problem and work the problem this is shuttle launch control well there you have it what what we didn't hear tom uh was that he was saying that work was underway to re-dump that's a word we ought to

[02:14:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8041s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8041s)

to re-dump that's a word we ought to explain to to take some material out of that backup computer uh they're doing that again they are also at the same time making an assessment of the function of this computer and how it's relating to the other four and the inability to communicate and they confirmed what we had heard earlier the earliest launch of the space shuttle today would be no earlier than 10 30 eastern standard time they are resetting the clock you've heard that to uh get the inertial um inertial measurement units the inertial measurement units realign the gyroscopes in that realign so that's where we stand now we're waiting judy it sounds very tentative to me at this point i think it is uh all we can say right now is that they're cycling back to the point where they're going to try again start the countdown again and see what happens but there's no indication that they've solved the problem certainly no i don't think so i think they're going to retry i don't think they know exactly what the problem is with present time that's why they're going to retry all right we're going to continue with our coverage here of the delayed launch of the columbia space shuttle and then we'll get more news from james hawley in new york after this eastern standard time this morning approximately an hour and a half from now this is hugh harris from the kennedy space center during this period of cape canaveral reporter bringing something in the situation here pre-flight alignment of the inertial measurement unit one of the time critical factors uh in the launch at the same time we will be continuing to troubleshoot the problem with the uh communications between the backup computer and the other flight computers on board the orbiter hoping that the solution will be found and that we will be able to proceed uh to the launch at 20 minutes after 10 eastern standard time this is shuttle launch control tom let me say first i don't think he

[02:16:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8161s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8161s)

tom let me say first i don't think he means 20 minutes after 10. because they're going to start the clock at 9 15. that would be an hour and 30 minutes 20 minutes after 10 right that's not yeah i think he means 10 20. they were talking in the area of 10 30 and but what's important for you all to understand is that that's just a target at this time they have not solved the problems you heard him say we will continue to troubleshoot the computer problem they still have problems with the fifth backup computer it's not communicating properly with the four primary computers on board it is a fail-safe computer that has failed as we have been saying some this morning they probably wouldn't need in the course of this flight but they don't want to go up there without it is what the situation is in the meantime they also have to realign the imus on board these are navigational aids the inertial measurement units judy it sounds like the frustration just goes on well that's what it sounds like but everybody's working hard and we're trying to get it going do they i'm just gonna say we're in a very iffy position now in terms of the launch today i think go either way yeah uh around noon is the uh is the outside limit for all of this that was we've we've been talking about a window as they like to describe it of about six hours altogether because what happens is you get darkness at the other end during the landing and they don't want to have that that's correct that's going to be tough enough in broad daylight it seems to me or at least it spooks me a little bit as i look at it it's very broad daylight out there now and robert bezzell has a guest for us in the vip area robert hello again with me now john is dr brian o'leary who was a an astronaut for a while even though i never took a space flight dr o'leary now is an expert uh he writes on the subject of what space holds for us in the future dr o'leary good morning and uh we we assume that the shuttle is going to go some day if not this morning someday soon what does this mean for us in your opinion well i think it's going to be the most important single event in the history of the space program because once the shuttle starts flying routinely we're going to be able to haul huge tonnages into orbit

[02:18:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8281s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8281s)

tonnages into orbit and what i mean huge tonnages i'm talking about thousands of tons this will enable us to build an industrial base in space what is what would an industrial base in space do for us that all our industry here on earth isn't going to do for us well first smaller things like communication satellites pharmaceuticals ball bearings manufacturing things but later on what i see is an explosive renaissance in the 1990s which is nothing less than removing the limits to growth of our very finite planet by that i mean mining the moon and the asteroids building huge solar collectors in space to provide energy to the earth growing food in space recovering on the earth but one of the things that we've heard a lot about the shuttle is that it's going to be used a lot for military uses and part of this building in space we here is going to be for future stations for space warfare a new era of threatening warfare isn't that part of the problem well right or wrong better or worse the cold war is alive and well and the military rationales and the political rationales just like around the time of sputnik may be the unwitting foot in the door toward an economic renaissance uh with the soviet union uh their their space program they're going to be having a 12-man permanent space station by 1985. they're going to have a booster that's twice the thrust of the apollo saturn 5 by 1983. these are the kinds of sputnik type of events and and the atmosphere of the cold war that i think will get us into this um renaissance that i'm talking about this means space colonies people will exploring the planets firsthand i see it all turning around sometime in the 1980s and the reason for this is not only uh because of fear and because of foreign pressures it's because there's an increasing awareness among americans that our space program needs to get back off the ground and you think the shuttle is bringing us there the shuttle is is the truck that's going to be able to bring us there but we we need more than the shuttle we need to put things into the shuttle okay i think i think there's some people he's planning to do that dr o'leary thank you for coming by tom thank you bob dr o'leary so far our

[02:20:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8400s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8400s)

tom thank you bob dr o'leary so far our truck is stalled in its parking place here this morning at cape canaveral the kennedy space center as they continue to work on the backup computer problem they are now giving us a tentative launch time of 10 20 a.m eastern time that's in what one hour and 30 minutes all together jane pauley will be back here in just a few moments talking with the first woman to ever head the commandants at a u.s military academy first this word it is you paid for it take a look at it 10 billion worth of space hardware still on the launching pad here at the kennedy space center at cape canaveral it cannot get off the ground because there is a problem with one of the computers at least one of the computers that they continue to work on here at the kennedy space center also at the johnson space center in houston texas and on board the columbia space orbiter where robert crippen and john young have been there now for several hours they had hoped for a launch time of 6 50 this morning that has been rescheduled till 10 20 eastern time this morning about an hour and no 25 minutes from now that does not mean that they'll necessarily get off the ground then because the fact is they've not solved the problem with those computers they're also in the process of realigning or recycling as they say the inertial measurement units those are the onboard navigational systems in the black boxes so that's kind of where we are at this time well and what we're doing is the astronauts have been in the uh in the columbia now for about four and a quarter hours they are lying on their backs on airline seats with their feet in the air as you would if you turn the chair over and they seem to be perfectly fine and they're in superb shape but it has been a long time waiting and the countdown now is going back to do redoing things that were being done here at the cape at between four and five o'clock this morning so this is a very serious hold and as tom says no guarantee that they'll fix the problem with the computers and that the columbia will able to be able to lift off

[02:22:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8520s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8520s)

off there was something said just a few moments ago by hugh harris here it says that they're going to compare the computer program to make sure that the proper program had been placed in the computer is there a possibility that they put the wrong program in that backup computer i don't think that's quite exactly what it means it's you want to make sure that that all parts of the program were were transferred correctly without any errors when it was transferred from the mass memory unit into the computer okay this is judy resnick one of our resident expert astronauts with us this morning we'll obviously continue our coverage of the delayed launching of the columbia space shuttle right after this station break [Music] so good morning everyone this is today it is friday april the 10th and you have not overslept necessarily this morning this is a special prolonged version of today as we continue our coverage from cape canaveral the kennedy space center you are looking at the columbia orbiter of the space shuttle system still on the ground now about two hours and 10 minutes past its originally scheduled launch time we're looking at a launch time now of about one hour and 20 minutes from now but there's still a problem and it has not been solved and the problem is in a backup computer system we have been talking about it at length they have been working on it now for more than two hours and yet they've not been able to come up with a solution to the problem hello i'm tom brokaw here with john chancellor and with joe kerwin one of the astronauts from houston who's with us he was a veteran of the skylab mission also an md uh joe was just saying a few moments ago you think that they maybe have a plan for dealing with this problem

[02:24:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8640s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8640s)

for dealing with this problem we were just told let me just bring one little piece of news here uh just as we came back on the air they were talking about going ahead and starting the realignment of the imus the navigational aids that we've talked about all morning that'll take another 48 minutes they say to do that that means that about 9 48 they'll finish that but that's really not what's the main thing no no thing is to decide if the computers that backup computer can talk to the other computers with any harmony at all let's ask the question that we were just asking off the air which is once they have figured out what the problem is how long will it take them to determine whether or not their answer is correct by having them talk to each other and reloading and everything well it's it's hard to say because most of the work now has been going on off the loop if you've noticed for the last hour or so it's it's gone into the hands of the experts but i think that they came up with a plan an hour or so ago to manipulate that software identify a fault verify a clean load and load it into the onboard computer and they told george page it would take x minutes and he set his new his new liftoff clock to that time that doesn't mean that they necessarily will succeed but it means if they do succeed it'll take that long and once they have it loaded in the computer i think all they need to do is bring the computer up mode it to the launch mode and look at the crt and if everything well not ahead of ourselves but i think that we got into a language that you're very familiar with and the rest of us aren't necessarily i have to use perfectly but we have to carry tom yeah that's right it's john's turn to get me is john's trying to get me in this in this case uh let's back up to that point of once they identify would it have been an error of in the data of some kind or an improper voter may have been something as simple as a zero that should have been a one or a one that should have been a zero uh when they loaded the software into the computer that the load didn't take quite

[02:26:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8761s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8761s)

that the load didn't take quite perfectly okay although you know joe there is one question that if i were covering the briefing that they're going to have on this i would certainly ask and that is that the launch control told us that one portion of that software program uh one set of information had never been run before and maybe that maybe that was just a mix-up but that's something that people are obviously going to ask about oh yeah they're going to ask that and i would be very curious about it too but we we haven't heard enough about it to to speculate that that information goes in in what i think they call kilobits per second i mean it really goes fast that's right thousands and thousands literally several million ones and zeros so do you think that you could load a computer you take stuff out of it have a look at it design a program or something around and send it back into the computer in thousands of little bits of information per second in what half an hour oh much less than that you can load one of those computers in a couple minutes and in fact the crew does it on board during the flight from the mass memory unit into the computer doesn't take long at all if they find the problem when they talk about the troubleshooters that work on this who are they talking about they're talking about computer experts at houston who run the software development lab and their contractor experts from ibm and in this case rockwell and their subs who have developed that program software they are running that software simulating the pre-launch period and trying to identify which word or which bit in that word is inaccurate and is giving them the the wrong wrong solution all right we're going to go to houston now where we have roy neal standing by in nbc's version of the flight deck it looks a lot like it but if roy pushes a lot of switches and a lot of buttons the difference is he won't get off the ground but he will get on the air this morning with our help roy how are you i

[02:28:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=8880s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=8880s)

morning with our help roy how are you i think we're on thank you tom with uh colonel gordon fullerton who with me has been listening avidly waiting for things to happen gordon what's going on right now here in houston i think uh as joe just explained the action is all in the back rooms not in the primary control room we have uh the primary flight controllers watching their systems which are still all go but waiting for word from the software experts as to what the problem is and what the fix might be you know i was intrigued we've got this nice uh reproduction of a flight deck i was intrigued by something you were telling me a little bit ago which is how the astronauts actually use that backup computer what what flight controls are used and what controls they might be working with right now could you give us some small idea just using some of our hardware here to show what that software is not doing all right the the primary flight software is in the first four of the five computers and the backup software is in the fifth one the uh the first four are normally the ones actually flying the aircraft but uh the the backup is following along listening to the data being processed by the primary and that's the basic problem this morning it's only listening on half of the communication paths that of the four that it should be it's only listening didn't even show up till they were about nine minutes down on the count of that planned hold that did it that's about when it showed up but that's when we actually mowed into uh to the launch software and where this uh four working the problem and the backup listening uh configuration is first initiated and that's why i didn't it didn't show up until then now generally the crew will keep this center display of the three television cathode ray tube displays uh assigned to the backup computer so that they can watch uh its status and its opinion of how the launch is going while they're on the way

[02:30:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9000s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9000s)

launch is going while they're on the way up well that's really what they're focused on now although our display has nothing to do with their display at the moment that's correct um and if if anything goes wrong then uh with the primary set and it's determined that that it cannot adequately complete the launch trajectory the crew would engage this backup computer by uh pressing this red button found on top of the control stick well let's hope that a little later today they will be able to press that red button and thereby activate a backup computer that would work when as and if they get around to a flight status hopefully they won't have to use it but uh we want a healthy one in case they do absolutely tom let's get back thank you rory neal we're back here at the kennedy space center and i'm going to show you how the time is being passed by some notables that's the governor of florida that's governor robert graham out there in his shirt sleeves playing catch in fact he's about to 20 yards away from where we're sitting right here you can look out the window and see him as well a lot of people have been out here for many hours now i know nasa is not thinking about us and the discomfort or the impatience of the folks who are looking in they've got problems of their own the governor of the state of florida obviously is here a lot of congressmen have come down for the launch as well a lot of friends of the contractors on this mission they've all been here since about three o'clock or four o'clock this morning because the traffic was so bad we'll have continuing coverage of the delayed launch of the columbia space shuttle from the kennedy space center at cape canaveral but now we're going to go back to new york where james hawley has more news for us jane thank you tom and the mvip the most important person president reagan up early this morning he has been following the coverage of the space shuttle and its problems this morning we'll get more on the president from bill lynch who is at the white house morning bill good morning again jane the president got up about 15 minutes before the scheduled launch of the columbia but he like many millions of americans were disappointed that it did not get off on time he's been watching the continuing coverage on television in his hospital room

[02:32:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9120s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9120s)

room but meantime has found time to have a 20-minute meeting with his chief of staff jim baker and key aid mike beaver he took a walk at about 7 25 up and down the hallway outside his room and then he sat down to enjoy a breakfast of granola and juice and coffee the president's key aides are now making plans for him to leave the hospital we expect him to come home possibly tomorrow still waiting for a launch we expect to hear in a few seconds from uh launch control we understand they'll talk to us in a few seconds to give us an update you see the countdown clock 32 minutes and seven seconds but uh we're actually aiming for a 10 20 launch we may find out more about it now uh from launch control this is shuttle launch control at t minus 31 minutes 55 seconds and counting uh many of the activities which normally fit into this particular part of the countdown have already been performed and therefore there's not as many being uh happening as uh had been previously we are still in the uh the mode of pre-alignment of the inertial measurement unit and are looking for liftoff approximately 10 20 so pretty soon because of the astronauts own pressure this word capsule disappeared and the thing became known as a as a spacecraft now i understand and i'm sure joe kerwin uh could uh if he's willing to could fill us in on this well let's see if he's willing to he's listening there's been quite a um actually if behind the scenes fight as i understand it among the older astronauts particularly to have a little more control of this uh columbia spacecraft uh to and you know now we've got five computers four of which are working this morning uh and as and the fifth computer is kind of like an arbiter for the other uh uh for the other four uh and there's been a kind of room uh argument whether there should be a white room uh uh atmosphere in the spacecraft what do you think joe kerr when you're listening

[02:34:02 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9242s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9242s)

you think joe kerr when you're listening come on we hit it we hit a distraction oh well i wanted to ask tom do do scientist astronauts have the right stuff your breath didn't say anything i noticed you joe i noticed you walking around with that that the fighter jock roll in your walk uh i've carefully copied joe he was a tom wolf was asking the question about whether or not they were fighting for more control of the columbia especially whether they wanted it to be a more flyable airplane this one yeah whether these guys were going to go up in it or insisting on having a little more control manual control but at some point yes but i think we've got it i think we've won most of those battles and and my view of it is that that this fight which started back in the mercury days uh gave uh american astronauts considerably more control over their vehicles right through gemini apollo and now shuttle than the soviet cosmonauts have ever had over theirs and uh that that's given us a more capable vehicle i'm proud of us what about uh tom wolf you've been watching uh uh captain robert crippen he has to have been cast in this role he looks perfect as an astronaut doesn't he well now in a way i have felt sorry and now we don't have to feel sorry anymore but for the all the people in uh robert crippen's group he was in the last group of astronauts the seventh group they were people who had begun in the old manned orbital laboratory program of the air force and this was that was going to be the military space station this is going back now to the mid 60s and now almost two decades down the line we're finally beginning to have this space platform uh that will have military applications civilian applications and and so on but he's had a long wait i mean he's he's not a he's 41 years old now well he's strapped in and as they say strapped in and ready to go if we can get this thing done today thank you tomorrow for sharing your considerable insights with us we'll be

[02:36:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9361s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9361s)

considerable insights with us we'll be back in a moment this is today on nbc himself has been through this continually in simulation perhaps several hundred times uh in this situation so it becomes uh a mental atmosphere that i think very few people on the outside could comprehend joe uh is am i on the right track there yes you are but i i think it's probably very different for a rookie than it is for a uh for a veteran uh of course when i launched i was a rookie and i had a veteran in the seat right next to me on the left and pete was so cool and so relaxed during that pre-launch countdown you couldn't believe it he was sitting there saying uh to paul and i uh hey we need some kind of a snappy thing to say to houston when we call power clear and what should we make up you know and he finally invented a phrase which he used and that relaxed us so that time went very quickly but the first stage which we'd simulated a hundred times i felt i was just a passenger in that vehicle that jeez were building up and i was being pressed back in my seat and we were shaking and waddling and rolling and i was saying is it ever gonna quit and then it quit and suddenly when somehow when that first stage engine cut off and we realized we were on our way everything focused back to normal started pay attention to the displays and i was a member of the crew once again that's a very special sensation i don't think you probably get it the second or third time up i'd like to find out i remember reading uh al worden's book of poetry called hello earth i think al worden is the only poet astronaut maybe there there may be others and he has a marvelous short poem about um the whole business of of simulation and he says he describes how in poetic language uh the astronauts go through this so many times it's like as if nasa is making them reinvent the wheel on the way to uh to actually going up into space and in his poem incidentally he mentions in the simulation that the instructor

[02:38:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9480s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9480s)

in the simulation that the instructor the soup sim i guess it is uh suddenly says to him fuel cell 3 is out and now now what are you going to do and he said well i'm going to crash on the moon for the 10th time today because he answers yeah there's a mixture of ordinariness and uh and specialness to being up there and one hits you and then the other incidentally i'll send you a copy of my poem which i wrote while aloft in sky lab it's not good enough to publish mike you mean this this disease is catching like oh yeah there was a moment earlier that i that i wrote down uh joe when you uh said it's not a it's not a mechanical problem it's a software problem and broke our answers knowingly yeah um yeah and i think oh sure software was not a language a word that that was was used if it existed in the early days did it no i i think that most of the engineering engineers uh was beginning to be used in the early parts of i don't remember hearing software so much the computers were there they couldn't have ever you know computers when the first mercury uh spacecraft lifted off the computers computers were barely a decade old it's amazing when you look back on it the computer was not produced as something on a production line until after 1950 is the astronaut hardware software well i'll tell you i'll tell you you can answer that is uh scott crossfield who was an x-15 test pilot and uh after all the talk about computers taking over from the pilots and even the x-15 days and ex-one days they were talking about this uh scott crossfield said gentlemen just remember one thing he says the human brain is a non-digital quasi-analog computer easily produced mass-produced by unskilled labor before though we're back you're looking

[02:40:03 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9603s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9603s)

before though we're back you're looking at the columbia orbiter just to the left there of its uh big external tank and the solid rocket boosters that will take it into space eventually perhaps this morning at 9 20 or pardon me at 10 20. that's the current launch time and we expect an update on that any moment now from the kennedy space center here we have reached the minus 20 minute point in the countdown and we have had a estimate we are receiving a uh information from houston that they have compared the program in the backup flight computer and that the proper program was in place now the problem is whether or not that computer will communicate properly with the other computers now what we know at this point is that it did have the proper program or the program that was scheduled to be in there now we have to determine whether that program is working we've had a time estimate on this uh t minus 20 minute hold of 30 minutes but this is contingent upon the completion of the imu pre-alignment once that pre-alignment is completed then we will pick up the count so at the present time we're at t minus 20 minutes and holding waiting to hear from the uh imu people about when that pre-flight alignment is complete this is shuttle launch control well your book there you have it the uh it was the right program that they put into the computer uh and that program was somehow not communicated to the other computers and i've gone back to the notes that we use for the countdown and when we hit our 20-minute hold

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when we hit our 20-minute hold uh what hours and hours ago here what was happening just two minutes before that it reads the primary computer is transferred to the backup computer in order for both systems to have the same data in case of a primary computer system failure the backup computer will take over control of the shuttle vehicle during flight and i guess that's what they're examining now to see if that'll work that's correct and it sounds as though they have software in the backup computer now i think uh i note that on the previous countdown it was at exactly t minus 19 minutes that this problem occurred when they loaded that computer to the launch mode but then the problem sorry about that occurred right on schedule yes they learned it right away yes yes is it now seem likely that they've learned that the program is correct so they are reloading a fresh program the same program is it just a backup one i believe they reloaded a fresh program some time ago at the same time comparing that that fresh program okay they did what's called an ipo an initial program load uh it may it may be the end of this t-minus 20-minute hold as we begin to move in the count again before we find out the big answer and and in the in the strange english that's spoken in space the 20 minute hold is now 30 minutes for those of you watching but the astronauts are saying that things are going pretty well too they're looking out the window and they said they saw the pelicans flying up and down the beach and they got word from houston that the burritos are going to be delivered on time because the fight control team will take over in houston the launch team is the kind of the burrito team they love to eat burritos during sims and what did you say they came in with special ties today with all the i heard they were gonna they were gonna distribute special uh capcom launch ties which have printed on them upside down and from the bottom up all the capcom's calls during lunch tower clear road program uh this and that you know so that he can just hold his tie out and get it straight all right when you were

[02:44:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9840s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=9840s)

get it straight all right when you were in school you may have written on your hand in this case they've got printed on their time now let's go to new york and change call it we're back now to bring you up to date once again they are still looking at a scheduled launch of the columbia space shuttle at 10 20 this morning we should know within the next couple of minutes or so the first report from houston on the computer space program we're going to get a full fix on that although they did tell us earlier that they've now checked it is the proper program that they had in the computer they presumably are reloading it or have done that and are beginning to let it talk to the other four to see how it's going how about the astronauts at this point joe how do you think that they're doing doing all right uh is just now talking to the launch director and asking some detailed questions about the bfs problem the backup software solution that was originally proposed was to take the bff down and re-ipl it and take the past gpc's to op0 and then stand by and bring them back up which would cause them to reinitialize and should result in a more uniform thing if they did have a timing skew problem however we were unable to do that because of the problems with the interference with imu so we elected to go ahead and uh take the mess down reload and recompare it bring it back up and uh we'll try it that way however uh yeah still have a problem right well um what they're saying is having verified that the software is correct they are looking at the details of the procedures whereby this bfs is brought into the fsb the backup flight system excuse me the backup flight computer is brought into the family and given the data they want to make sure they do those steps exactly right so that the timing is correct and it'll pick up all four hopefully strings of data make sure that all five members of the family aren't arguing that they're all talking and they're all in good harm you know how

02:46:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=9960s)

they're all in good harm you know how hard that is that's very hard and human can let me raise one other point i noticed a moment ago when they gave us the weather check that the wind had picked up about one knot and i look out there now and it's beginning to blow a little bit that could also affect a launch if it gets above 10 knots uh the the 10 knot limit is there it's a relatively soft limit depends on wind direction too as well as velocity uh i have a feeling they'll go a couple nights over if you need to the weather is important not because it would blow the columbia off the launching pad it's because if something happens on launch and they have to come back and land it here they don't want strong cross winds because they're coming in without power i think one of the things about slipping the launch into the afternoon isn't so much darkness at edwards as it although that that would eventually uh happen is that the winds and the turbulence in the atmosphere over the desert will pick up in that afternoon sun the uh listening here on the uh to the talking to the shuttle from control they say they are not heavily confident that the problem is going to be solved right at the moment i think that's a very important thing the the probability the launch control said the probability will be cleared up is not so good and if we are not heavily confident nevertheless they're going on everybody is standing by including robert bazel who has a guest outside [Laughter] jobs to get these men into space and with me now i have uh rita wrap whose job it is to design the meals that the astronauts are are going to eat when they finally get into space good morning miss rap how are you today good morning just fine what kind of considerations uh do you take into account when you decide what kind of food the men are going to take up with them well we have to consider the availability and we really look at long shelf life and and nutrition and safety of food the packaging is uh also important we've heard a lot about the fact that on this flight they're going to be eating more than they've eaten on previous flights how did that affect what what kind of

02:48:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10080s)

how did that affect what what kind of food you chose well on skylab the one fact that we did determine was that astronauts need about the same caloric intake in space as they do on the ground so we've increased it from about 2 800 that we used on apollo and to about 3 000. you brought some food along with you we'd like to take a look at it now uh we were looking at this before and i must say i've been standing out here all morning and uh and i'm very hungry but this doesn't look like something that i'd want to eat even right now but let's take a look what do you have here it's very delicious this this is a meal package and it happens to be a breakfast and actually the crews are eating food that is more like what we eat here on earth while they're in space most of the products are commercially available in our bite size they're ready to eat form we have dried apricots which the crewmen just cuts the package open and can eat them we also have dried beef which he can cut the package open and either take it out with a fork or there will be bread available in the pantry and he can he could make a sandwich if he wanted to is there a problem that stuff might float away there's velcro on each package here and he has a tray that organizes all the parts of food it serves as his plate and then you can attach the the velcro patch on it and it stays secure very good we're going to talk to you some more later i think but right now we're going back to tom in the booth tom yeah let's uh listen now to hugh harris who's telling us the camera uh meanwhile also at the uh space center

02:50:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10200s)

uh meanwhile also at the uh space center the uh there has been an attempt to duplicate this scenario on the shuttle mission simulator and the space avionics integration lab uh however that uh did not turn out to be successful either okay we're ready we're at t-minus 20 minutes and holding uh this is shuttle control houston that's john mcgliesh bringing us up to date from houston um the frustrating problem it really is could you explain a little bit about the fact that there were no miscompares he said which means that the comparisons were valid that's right but then he all he said there was also an attempt to duplicate this in the uh in the simulation and that was not successful that's right and they were trying to simulate the frustrating thing is to try and run that thing through to t minus 19 minutes and get the problem and then with the same load of software they've not got the problem so they get they get the problem on board here but not at the simulator that's what they're telling us and they're still looking at uh 10 20 but it's very iffy at this point we're going to have a station break and continue our coverage of the delayed launch of the columbia space shuttle death trap death's trap broadway's smash comedy thriller is an evening of laughs and screams and fun and games and murder [Music] ireland's death trap is sheer terror and pure delight death strap starring farley granger on broadway at the music box theater murderously funny america's first space shuttle frankfield reports on news 4 new york

[02:52:02 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10322s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10322s)

and we continue here from the kennedy space center in cape canaveral florida where the columbia orbiter still sits on the ground because they can't get it off they've got a continuing problem with a backup computer that they've not been able to solve once the shuttle is launched either this day or another day there are lots of reasons to think that it may not be able to go the full 54.5 hours or 36 orbits they think that it may not go the full route we're about to get an announcement now from from kennedy no from here from houston from mrs kennedy well i think we're going to get it from houston this is launch control yeah launch space center okay we're going to get an announcement folks and that would be hugh harris the voice you will hear who is the shuttle launcher this is shuttle launch control at t minus 20 minutes and holding the nasa test director has just conducted a check with all of the major elements of the launch team to determine that they are ready to resume the count at the t-minus 20-minute point in [Music] that the pre-flight alignment is complete on the inertial measurement unit that is the one milestone we were waiting for and we will pick up the count momentarily the countdown will resume at the t minus 20 minute point we will count down to the t minus nine minute point where there ordinarily is a ten minute build in hold and at that point we will hold but it may not be for the entire 10 minutes [Music] we are standing by to hear a time for resuming account at this moment well then i that means tom that we're we're back in business or we'll be very soon here we

[02:54:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10440s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10440s)

soon here we will we'll be back in account anyhow it doesn't mean that we solve the problem we'll be back to that very critical place in the count where they tell the backup computer to do its stuff and it'll either do it or it won't and we learned the last time that it was t minus 19. about being right so about one minute after they start the count now they'll get a fix on what's going on unless they're going a little more slowly on time that's true remember it doesn't mean once the clock begins that it's 20 minutes to launch it means it's t-minus 20 and they're going to go down to nine and hold they'll go for a lot they'll go for 11 minutes and then they'll hold and the hold was built in as they hit the various markers along the way they're still talking about a 1020 launch time and it looks like this fits that yeah yeah okay in two and a half minutes they're going to start the clock again we'll be releasing from the t-minus 20-minute hold countdown to t-minus 9. this is shuttle launch control let us in the meantime show you once it takes off if it doesn't make all the orbits that it's supposed to something happens along the way an engine fails or something else goes amiss once they're in the air they have a number of what they call abort modes that is they have a number of ways to get the spacecraft safely back to earth let us show you now with the help of animation what they have in mind the type of abort procedure selected will depend on the extent of the engine failure and the point reached in the launching the crew can simply eject at low altitude if there is time it may elect to separate the shuttle from the main tank and booster rockets and then eject if enough power is available the crew may take manual control guide to craft above the atmosphere and then jettison the tank they would then re-enter the atmosphere and at ten thousand feet and an air speed of two hundred miles an hour they could eject the most dramatic of the abort procedures would be a return to the

[02:56:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10560s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10560s)

procedures would be a return to the launch site that would mean flying down range to exhaust most of the fuel then in an unusual pitch around maneuver the shuttle would turn right side up and head back for the base after a pitch down maneuver the main engines would be cut off and the tank released the shuttle would then glide in for a crew-controlled landing another possibility the abort once around the spacecraft would almost complete one orbit but it would wind up 500 miles from the primary landing site at edwards air force base in california the landing then would have to be made at the northrop strip in white sands new mexico if the orbiter has engine problems after the four minute mark which is halfway through the powered flight part of the mission the orbital maneuvering engines could still put the craft into its 150 mile high orbit if for any reason this were not possible the shuttle could be put in a lower 105 mile orbit from this position there would be time to plan whether to continue the mission boost the spacecraft higher or end the flight at some earlier time [Music] and now you see the clock is moving again uh the countdown has been resumed it they're going to count now for about 11 minutes and that brings us to another uh landmark on the countdown schedule it means that the nine minutes before the schedule liftoff they will go into another hold position the latest word we've had from launch control is that they may not hold for the full 10 minutes of that scheduled hold they may take less of that time and then proceed toward a launch at the same time i think we should all be very cautious not to predict that there will be a launch but these uh we're going through a very critical period now in which all the other things are working well

[02:58:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10680s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10680s)

working well some of them having been done this morning for the second time the propulsion systems are fine the astronauts are fine and safe all the things are going on here in some of them twice but all normally except for that matter of the computers that won't really quite match and we haven't had a definitive answer on that yet to launch control but i think the clock is moving nevertheless i think that they just said didn't they joe that the computers are now starting to talk to each other there's a kind of tentative little meeting that has been arranged among this family of computers and we're going to see how they get along and we hope that they get along very well we'll let you know in just a few moments as we continue our coverage of the delay of the space shuttle columbia after this [Music] an important announcement now from launch control this is shuttle launch control at t minus 15 16 minutes 30 seconds and counting we have just had a repeat of the problem which we have been working for a couple of hours now in which the backup computer is not talking to the other computers properly uh we are standing by now to hear while uh launch director george page talks to people about the possible alternatives available to us this is shuttle launch control well that's a that's not a dramatic announcement uh the problem is back where it was again which leads me to wonder joe if uh we don't exactly have a software problem a problem of computer programs that maybe we have some kind of hardware problem that the computer can't talk to it i know you look very skeptical when i say that i've heard no inkling of a hardware problem uh i don't know whether you'd call a synchronization problem a hardware or a software problem but i think it's basically a software problem and but they've matched these programs up before they just the simulator yes they have that i mean

[03:00:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10800s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10800s)

the simulator yes they have that i mean this is the key to the whole thing and they obviously have gone through this drill a number of times haven't they indeed they have and so as you said earlier maybe a a one became a zero and that threw the whole thing on [Music] and as as i said before it's possible that there's a one that should be a zero in the primary computer let's break this up [Music] 30 seconds well we're going to get a little more on that and just to bring you all up to date george page the flight director as you heard announced was talking to his senior colleagues there to decide what could be done about the problem that has repeated itself now and uh it's conceivable that in the next 12 seconds we may get some word that mr page who's in charge of all this has made a decision about what to do this morning but they they really are in a pickle aren't they joe for today before today yeah they're beginning to run out of time for one thing i mean they've been working on this for three hours and it didn't work when they went back up and they've only got about two hours left solution they did a medium long solution right from the top on the loop they may have one more solution which is to bring the primary computers to the standby and then back to the on and see if that helps okay here we don't have to decide whether to do that no it's not quite yet uh recommendation that we uh recycle back to 20 uh and then recycle back to get the crew out of the vehicle i believe they're going to take the crew out of the vehicle that's the recommendation i've just heard uh this is shuttle launch connection here's launch control follows in 30 seconds before to get us back to 20 uh with the indulgence crew and then we'll bring in the personnel to uh get the hatch open what you they're now talking from launch control to the astronauts in colombia about recycling part of the uh countdown but then sending a crew up in the tower

[03:02:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=10921s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=10921s)

sending a crew up in the tower opening the hatch and taking these men out and i expect that's what the announcement will be when we hear it formally this is shuttle launch control at t minus 13 minutes 15 seconds and counting a determination is being made as to the resolution of the problem that we have had with the backup computer once again it is not communicating with the uh the other computers on board at the present time preparations are being made uh to prepare for uh terminating the countdown uh for a recycle however we are standing by to wait for a final decision the clock is now stopped you can see it there on your screen uh 12 minutes and 32 seconds uh well now it started again i think they told him to stop and he hadn't stopped it yet but the the they were talking about going back to t minus 20 which is that critical final 20 uh critical final countdown before they go into the launch it doesn't mean that they expect to solve the problem that would just be an automatic wouldn't it to go back to that at the present time a discussion is being held between the management personnel in the firing room concerning the options which are open and the decision on scrubbing for the today which has plagued us in this launch attempt has been the inability of the backup flight computer on board the orbiter to communicate properly with the other flight computers this is what had caused a delay uh in the uh the launch uh and then we have recycled to

[03:04:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11040s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=11040s)

have recycled to uh wait for uh a resolution from houston we're standing by now for an announcement so the announcement will come from the johnson space center in houston that that large room full of space controllers that actually operates the flight while it's in orbit the launch director george page and center director dick smith have just announced that we will scrub the launch attempt for today uh we will stop the clock probably at the t minus nine minute point and send out a crew to open the hatch uh of the orbiter and uh take the crew back to the astronaut quarters the earliest time in which we could possibly reschedule the launch will be for sunday morning at 6 50 a.m what this is dependent on of course is resolution of the problem uh which we have had in today's launch attempt that problem has not been traced to whether it is a strictly a software problem or whether it's possibly has something to do with the hardware what has occurred has been that the uh there are five flight computers on board the orbiter the normal configuration for a launch is that four of them are programmed for the ascent run and the fifth has a backup program in it the each time as we went down the countdown there was an inability of the backup computer to communicate properly with the other four general purpose computers we have attempted to check out the program the program that was in the backup computer was the proper program the one that we had planned to put there uh however what that does not say is whether there is some problem that is in that program which is uh not understood at this moment

[03:06:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11160s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=11160s)

understood at this moment in any case we have to recycle and uh we'll have a determination probably later today as to whether to reschedule for sunday the reason that sunday would be the earliest possible time we could schedule for has to do with the conditioning of the liquid hydrogen tank in the external tank this is the tank which supplies the fuel to the main engines on the orbiter uh the liquid hydrogen which is placed in with them is a very very cold minus 423 degrees below zero fahrenheit uh in order to ensure that there be no damage to the the metal in the tank uh there has to be at least a 24 hour conditioning period after the liquid hydrogen is drained from that tank before liquid hydrogen can again be placed in it since we are this late in the launch window at this time it will not be possible to drain that and then have the proper conditioning period and then reload it in time to schedule a launch for tomorrow so at the present time we have terminated our launch attempt for today and uh will reschedule for no earlier than sunday morning at 6 50 a.m eastern standard time this is shuttle launch control okay well it must be a very frustrating situation for the people not just those in the columbia spacecraft of course uh astronauts young and crippen who are now being taken out of there but all the folks at nasa who've been working on this space shuttle for a good long time it is already two two years overdue and it is now more than three hours overdue and it has been scrubbed until sunday we'll be back with more but first a station break

03:08:02 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11282s)

we're back and you are looking at the now delayed for at least 48 hours columbia space shuttle we just received the official word the launch has been scrubbed for today the earliest possible relaunch time is sunday at 6 50 a.m but before they can make that kind of a scheduling they still have to solve that problem of the backup computer not communicating with the four primary computers on board the columbia orbiter those are the computers of course that drive the ship that do almost everything on it so it's an important problem to get solved they simply will not go up without getting it solved and they've not been able to do that in about a little more than three hours here today and in houston at the johnson space center so that brings you up to date on the situation the colombia has had its problems before and they continue today must be pretty frustrating joe yes i mean your face actually fell when they made that announcement and you weren't on board and not in houston as well from a philosophical point of view it doesn't matter that much to the space program whether we launched on friday or on sunday uh let me add to that that i i have high confidence that this problem will be solved and where i flying it it would not give me any less confidence in the performance of the vehicle it's not one of that kind of problem i feel very sorry for all the people who went to all the trouble to come out here and watch and are going to have to go home again let me ask you a question both as an astronaut and as a medical doctor crippen and young have to have been keyed up for this particular thing and it would not be human not to yes sir uh now there's a kind of a letdown isn't there could you describe what that what that may be how they're going to feel oh they'll probably feel a little a little irritated and i think you'll never see it okay in their faces or in what they say but like all of us they would tend to feel as if fate whatever that is had dealt them a blow

03:10:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11400s)

them a blow okay everything was go the weather was go and the weather's not go that often all around the world and this one lousy problem with the with the backup computer 19 minutes before launch did him in is there anything in the training of an astronaut that that schools you in keeping control on this kind of thing my inclination would be to go back to the room and pick up a potted plant and smash it against the wall wouldn't that be fun uh i think so and i think it's the fact that as you know you simulate again and again in the simulator breaks or the the mission control center computer goes down uh and this kind of frustrating waiting around or recycling until tomorrow is happening all the time they come down here for a flight readiness firing it's delay today then delayed another day you're used to delays by the time you get to launch well nasa is disappointed the astronauts certainly are disappointed and joe kerwin is disappointed we're a little frustrated here as well but let me tell you that there are probably around cape canaveral here upwards of a million people who have gathered have some of them have come from great distances they have been in a traffic jam that began at about midnight last night they've been waiting in the floor to send for the launch and they must be terribly disappointed that's only a guess let's find out now from jim cummins who's with some of them jim the thousands of people who came out here throughout the night are now starting to leave all of them at the same time as we've told you throughout the morning most of the people here have worked on the space shuttle project or brought their families and friends out here to watch the launch they are also people who have come out here many times in the past over the past 15 years to watch the launch of various space equipment and so they understand what delays are about they also understand what postponements are about we did not find one person here who was angered by it nobody was really some people were disappointed but nobody was really upset

[03:12:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11520s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=11520s)

disappointed but nobody was really upset as one young man we interviewed earlier said anything we can do to ensure the safety of the people on top of that rocket is necessary there is one thing that will test the patience of these people here all of them are trying to leave at the same time and about something like 50 000 people will be getting into uh 15 or 20 000 cars and getting on a two-lane highway here and trying to get out at the same time and that should take several hours this is jim cummins five miles from the launch site at the kennedy space you jim i don't know if it's in the interest of anybody but this morning getting here it was a number of us had to drive through the ditches and on the roads i mean and on the shoulders and on the wrong i don't know how many traffic violations we would have been cited for had there been any police around but it turns out that there weren't we have jim cummings of eric burns eric burns in washington d.c he's been at an elementary school this morning where they have been watching all these delays let's go there now eric uh let me begin tom by making the point about why we have been all morning at an elementary school because i'm afraid it might seem to some people on a morning as momentous as this was to have been a little trivial to be sitting here like this but these are people too young to remember the last time the united states was in space skylab certainly too young to remember men walking on the moon and what we wanted to do was find out if for these people and what these people know about outer space comes mainly i think from movies like star wars and the empire strikes back we wanted to know if they still had a fascination for the more what should we say mundane realities of real outer space well they have written poems and uh joe kerwin our astronaut in cape canaveral can compare them with his by the way to see how they stack up which show i think that that fascination despite all of the movie hardware we have seen recently still exists and if you will please give me your name first and uh let's hear what you've written julie vanaman the space explorers the space explorers discovering unknown

[03:14:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11640s)](https://www.youtube.com/watch?v=GWQ5ayolfss&t=11640s)

the space explorers discovering unknown regions do some things other people haven't even dreamed of they walked on the moon they came back to earth they're going to launch a new shuttle who knows when it will come back to earth and what it will bring maybe those space explorers will even stay up there in space who knows when it will leave earth if i may make that comment your name rosalina pereira and your poem spaces space is the region beyond the earth's atmosphere space is the sun moon comets meteors and satellites the nine planets mercury venus earth mars jupiter saturn uranus neptune and pluto are all part of space space is the whole universe unspoiled waiting to be discovered accent on the waiting to be discovered one more editorial comment let's move down to you you are michael sharkey and michael your poem please why why must we travel this endless ford why we employed everything that we know to get man up there and still want more why must we dare why do we feel of our home as a snare why if these are questions that plague you a lot simply reply because or why not and finally you are michael spector and michael the last stanza of your poem if you would just read that for us please space travel becomes more complicated each day leading mankind in every which way but there are still astronauts at cape canaveral and an astronaut in the heart of us all the fascination exists despite star wars the empire strikes back etc now back to cape canaveral for some pros we've been putting out pros here of varying kinds all morning but the fact is that uh we'll be putting out more of that pros come next sunday morning here when we cover the we believe it'll be sunday morning that's what they're saying now the earliest that they can reschedule this uh scrubbed mission of the space shuttle would be sunday morning and the reason for that is that that large tank that we've been looking at all day on the uh the external fuel tank has 586

03:16:04 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=11764s)

on the uh the external fuel tank has 586 000 gallons of liquid oxygen at the oxygen is minus 297 degrees fahrenheit and it also has liquid hydrogen at minus 420 degrees fahrenheit this is very tricky and dangerous stuff to handle so they've got to take that out they've got to empty the gas tank on one of the gas tanks on this and then they've got to clean it up and put it back in again a long time-consuming process and that takes 48 hours so if they were to solve the computer problem this afternoon they would still take them until sunday morning for lunch and they have scheduled no time all they say is sunday morning at the earlier well sunday morning 6 50 they were saying at 6 50. same time that we had this morning 48 hours delayed we have bob busell down in the vip area which is now standing for vacating important persons let's good let's see what he has down there bob yeah sure they sure did vacate the vips have buses to get them out of here in a hurry and they all went off like a shot when they heard that the thing wasn't going to what would the shot wasn't going to go off uh the reason is that they got to try to get out past the enormous traffic jam which as you know i can testify to i had to walk about five miles and hitchhike to get here myself this morning there was an audible groan when the when the thing was announced down here both here uh with the thousands of people in the vip section and the hundreds of people in the press corps but the press has to be back i think some of the vips are going to have to get back to their work and they can't stay around and forward it tom i was talking i don't think you'll mind me telling the story one of the vips was a congressman john russolo from california and i saw him last night i said john what committee are you on that brings you down he said i have no committees that belong to space at all and i said well why are you here then he said palmdale used to be in my district palmdale is near the area where the astronauts are going to land once they get up in the shallow edwards air force base and he thought that was a good enough connection that a part of it had once been in his district and so he elected to come down here as did a number of other congressmen well tom not to put too fine a point on it but

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not to put too fine a point on it but aside from the perfectly wonderful people in the vip stands there were a lot of freeloaders and the idea of all the freeloaders heading for the hills the minute it is scrubbed tells us i think more about freeloaders than it does about space broke it says something about their wisdom as well incidentally having been in that traffic i know how tough it can be um what are we gonna do we have an announcement coming up from launch control in 30 seconds uh that will probably fill in some of the details of how you defuse a rocket of that kind it's not an easy thing and it has to be done joe with extreme care it seems to me given the fuel situation uh and don't take a siphon hose and put it in there and no you can't just take that out that has to be done carefully and we'll be hearing i hope in about five seconds now the next announcement from launch shuttle launch control we have had a determination to uh scrub the launch attempt for today the next steps which will be taken in recycling for another launch attempt the earliest which of which would be on sunday morning will be uh having the team come back into the pad to open up the hatch and take the astronaut crew members john young and bob crippen back to the astronaut quarters following that the uh external tanks uh cryogenic propellants the liquid hydrogen the liquid oxygen will be drained back into the large doors on the pad and then the vehicle will be safe and put into a configuration recycle it at the present time uh there has been no determination of what the problem actually was as far as why the backup computer was not communicating properly with the other computers on board the orbiter an announcement of when the next launch attempt will be of course depends on

03:20:01 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=12001s)

attempt will be of course depends on having resolved that problem but the earliest launch date would be sunday morning at 6 50 a.m the reason for that is that the hydrogen tank onboard the external tank uh requires at least a 24-hour conditioning period it had been proposed that possibly propellants could be held in the tank to avoid that however uh if it went as long as two days uh we would not have sufficient cryogenics at the center to support that so at the present time we are having the astronaut uh crew go out to the pad uh to open up the door on the orbiter and take astronauts john young and bob crippen out and back to the astronaut quarters this will be followed by de-tanking the external tank and safing of the vehicle for another attempt the earliest possible launch date would be sunday morning 6 50 a.m eastern standard time this is shuttle launch control can we get a look just for one moment at the orbiter again on the pad because what we'll be seeing now that's a big hammerhead crane you see uh at the top of your picture what they will be swinging in is something called the orbiter access arm from that tower that's that you see the fixed service structure there behind the big fuel tank and it will be across that arm that the astronauts will travel and then they'll be moving other arms in off the service structure for the draining of the fuel in there a lot of disappointed people here at cape canaveral today at the kennedy space center and an awful lot of disappointed people in houston at the johnson space center roy neal is in houston now john here in houston the disappointment has yet to set in you see they're still working in mission control this is neil

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working in mission control this is neil hutchinson the flight director joe allen the capcom or astronaut in residence who is still talking to the astronauts and they have a big job right now the job of securing that spacecraft with the crew on board the columbia at this time john young and robert crippen are busily working but this huddle of people right here are in communication with them the bearded one by the way is our flight director neil hutchinson and what they're really working on now is getting that spacecraft secured after which the analysis begins and in about an hour or two here in houston hopefully the boys in the back room will emerge coming out into mission control proper and at that time perhaps come up with some idea of what happened to that backup computer this morning so that it didn't work correctly so that it didn't communicate correctly it was working it didn't communicate correctly so having standing by listening waiting for something that won't happen today john and we're back uh with joe kerwin and we've just been talking it seems to me when you were talking a few moments about about the problems of either there are no problems you go ahead and do it on sunday morning but let's face it nasa's had a lot of trouble in terms of public relations with the space shuttle already you've got a fair number of critics out there both in congress and in the general public this is not going to help the mission but it'll all be forgotten if we have a successful mission right nasa in my estimation has a reputation for success and efficiency within the government and around the country which is probably our most precious asset we like to launch on time that's spiffy but we darn sure want to be successful the other important thing is that we haven't talked about very much today is that a lot of people may not yet be aware that this is a manned test flight it's the first one we've had of those kinds in fact i mean there was no unmanned predecessor to this never before these guys are going up in there for the first time

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for the first time so that makes the margin of error that much thinner all along the way that's right that's right so we want to be right in the center of our of our safety zone we want to have all our redundancy we want to have the best weather et cetera and so on but we'll wait a few days to get it all right let me ask you about the computers the hardware the computers themselves are made by ibm right who designs and puts together the software which is where we're told the problem may be although they're beginning to say at the end it may be a hardware problem the software for the primary computers is also an ibm item okay the software for the backup computer is a rockwell item and they have a a a computer sub subcontractor whose name escapes me at the moment with that works with them so we have two different sets of software built by by uh by two different companies that have to work together and of course the people who help make it work together are the software experts at uh houston when the astronauts come out of it as they're now being taken out of there will they become involved in the next 48 hours and trying to help resolve this problem or will they go back to their kind of pre-flight under their pre-flight attitude if you will where they go up and they fly the jets for a couple of days or a couple of hours at a crack to relax and they go over some things my guess is that they will be questioned and conferenced with to make sure the software experts understand what went on in the cockpit and and what the symptoms were okay and that then it's pretty much in the hands of those experts and the crew will probably go their own way for the next day and a half i mean they'll take them to the manual thing when you hit this it didn't work and so on and that's right i first know that's right make sure that you did you did get this toggle and not that one that's right they know all that stuff anyway obviously what's not a uh what's not a switcher they've gone through that in the back up yeah but i don't think the crew i don't think any of us can uh substantially contribute to solving this problem now the guys back in houston once they

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now the guys back in houston once they think they have a a solution will undoubtedly get back in the simulator and simulate it okay but uh but they did that before and it worked out all right when they took it yeah but they didn't have a solution at that point yeah they had a problem they had a match up and they showed that part of it wasn't a problem they couldn't reduplicate it either i think speculating one of the first things they'll do is dump the primary computers all of them and check that software out and just start everything from there yeah yeah and as you told us earlier today joe they can they can load these computers with a lot of facts in a short time indeed they can okay we've got all the data we need all right so they could do they could run four or five different tests if they wanted to oh sure what other parts of the spaceship have to be powered down and altered when it's parked like this uh well you mentioned the electrical power system and the fuel cells the fuel cells run on cryogenic liquid hydrogen and liquid oxygen also in much smaller tanks that are contained inside the orbital vehicle i don't think they have to de-tank those that they may have to top them off right on sunday before they go but that's not a uh there's no fire process or explosion danger no because they keep a nitrogen purge on the vehicle all the time when you have been talking about when you've been talking about the contingencies for the possibility of a delayed launches you've been talking about abortion does that reduce even more the prospect that you will not go full mission no i don't think the plan will still be to go 650 sunday morning and go for the 54. probably i don't think that has any impact whatsoever on the flight duration one of the things that occurred to me that we didn't get a chance to talk about today was when they were making changes in the flight plan about how they were going to use the astronauts once they got up there to make sure that they got the proper rest and got to bed on time and so on

03:28:00 (https://www.youtube.com/watch?v=GWQ5ayolfss&t=12480s)

rest and got to bed on time and so on the astronauts really don't have a heck of a lot to do in this one uh i mean they've got they've got a lot of functions to go through as they get it into orbit and so on but they're not carrying out a lot of scientific experiments and so on the primary mission is to get it up and get it back safely they don't have a lot of scientific experiments but they have a lot of engineering tests to run and they're going to be very very busy i think they really are i think that uh that a perfectly nominal first 20 hours flight plan doesn't say that i'll bet they'd be up three or four hours after their time playing catch-up getting everything done well it's a busy flight because it's such a short one when the space shuttle system gets started as i understand it there will be people who the mission specialists will go along in addition to the pilot and the commander who will be doing a lot of these things so it's arguable they may do less on some of the future flights it's arguable when we get to that point that the uh in fact we we talk about the commander and pilot uh bringing the vehicle up and then breaking out the funny books yeah for a week while the mission specialists and payload specialists do the science yeah uh this you know is is a casual sort of joke but it underlies the problem that the commander and pilot won't have very much training time available pre-flight to learn those complicated experiments yeah they'll have plenty of time in flight to do them but not much time before in order to learn the procedures because the plan is once we get going to fly commanders and pilots as often as every three months and whereas the mission and payload specialists would be cycled much less often every six months to perhaps even every two years how do you talk about all the training how do you see your role as a doctor and someone who's been up in skylab in a future space shuttle i see it as a as a mission specialist i'm a pilot but i'm not as good as john and and i think the mission specialist role is is better what are some things that you would like to do personally that you look forward

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to do personally that you look forward to doing out there in the shovel uh now from a purely personal uh point of view i'd like to fly as early as possible and i and i'd like to do another eva because those were two of the most fun things i've ever done in my life and they're really walking outside that's right walking in space uh from a more sober and realistic point of view i can do those things and and also perhaps participate in a dedicated medical space lab mission uh which will be coming up in a few years that uh is right down my alley professional for a ride i know i know tell george tell chris um george page was talking to the astronauts as they were in the delay and he was saying how are you holding out out there and just laying here you know replied young who's pretty loconic anyway and then paige asked getting uncomfortable at all there's a long pause and then young replied we're getting there george we're getting there so that you could tell the frustration was sitting in there and they'll now have another 48 hours to think about that if the problem gets solved in the meantime is back 150 feet in the air yeah we're going to do a tricky little piece of business here in television real time as you might say down in houston we're going to say goodbye to our friends in the eastern time zone and in the central time zone but uh those of you who live in the rockies and also in the pacific time zone stick around there's a lot more to come the rest of you will see back on sunday morning east coast midwest and everybody's invited back then if it is a resume launch time at 6 50. but we're going to take time out now for a station break you

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